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TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF PENNSYLVANIA,

AT ITS

THIRTY-FOURTH ANNUAL SESSION,

HELD AT NORRISTOWN, MAY 9, 10, 11, 1883.

VOLUME XV.

WELCOME INSTITUTE LIBRARY

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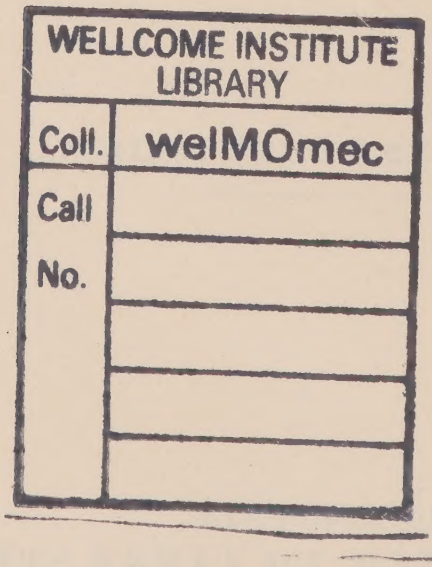
1883.

By a Resolution adopted at the Session of 1853, the Committee of Publication was instructed to prefix to each volume of the *Transactions* a note, or statement, to the effect that the Medical Society of the State of Pennsylvania does not indorse or sanction, by its authority, the facts or opinions contained in any address or report made to it, or which is directed to be inserted in its published Transactions.



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VICE-PRESIDENTS.

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2d. H. B. Van Valzah,	Clearfield "
3d. J. W. Kerr,	York "
4th. S. S. Schultz,	Montour "

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CORRESPONDING SECRETARY.

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M. S. French,	" "
Hugh Hamilton,	Dauphin "
James Tyson,	Philadelphia "
Chas. S. Turnbull,	" "

MINUTES OF THE PROCEEDINGS

OF THE

Medical Society of the State of Pennsylvania,

AT ITS THIRTY-FOURTH ANNUAL SESSION,

HELD AT

NORRISTOWN, MAY 9, 10, 11, 1883.

The Medical Society of the State of Pennsylvania met at Music Hall, Wednesday, May 9, at 9½ A. M.

Dr. Wm. Varian, of Crawford Co., President, called the Society to order, and prayer was offered by Rev. J. A. Tweedel.

The following officers were present: Vice-Presidents Dr. Addinell Hewson, of Philadelphia Co., Dr. E. P. Allen, of Bradford Co., Dr. A. Thayer, of Erie Co., and Dr. A. M. Miller, of Lancaster Co.; the Permanent Secretary, Dr. William B. Atkinson, of Philadelphia Co.; the Assistant Secretary, Dr. Edward Jackson, of Chester Co.; the Corresponding Secretary, Dr. John G. Lee, of Philadelphia Co.; and the Treasurer, Dr. Benjamin Lee, of Philadelphia Co.

The Permanent Secretary read the list of delegates and members. The following is the entire list as registered:—

Adams County.

A. Noel,	Bonneauville.
J. W. Pearson,	York Springs.

Permanent Members:—

J. W. C. O'Neal,	Gettysburg.
R. S. Seiss,	Littlestown.

Allegheny County.

Samuel Ayres,	Pittsburg.
J. M. Batten,	"
Thos. J. Gallaher,	"
J. Chris. Lange,	"
John Semple,	Wilkinsburg.
Wm. Wallace,	Pittsburg.
E. A. Wood,	"

Permanent Member:—

G. G. Rahauser,	Pittsburg.

Armstrong County.

J. T. Deemer,	Manorville.
R. L. McCurdy,	Freeport.

Beaver County.

H. S. McConnell,	New Brighton.

Berks County.

J. M. Myers,	Wernersville.
Jas. Y. Shearer,	Sinking Spring.

Permanent Members:—

Israel Cleaver,	Reading.
W. E. Hunsberger,	Maiden Creek.
W. Murray Weidman,	Reading.

Blair County.

Robert C. Irwin,	Frankstown.
Wm. S. Ross,	Altoona.

Permanent Member:—

Wm. R. Finley,	Altoona.

Bradford County.

George F. Horton,	Terrytown.

Bucks County.

A. M. Cooper,	Doylestown.
Wm. E. Doughty,	Hartsville.
Howard Pursell,	Bristol.
I. N. Richards,	Fallsington.
Frank Swartzlander,	Doylestown.

Permanent Members:—

Joseph Foulke,	Buckingham.
Harvey Kratz,	Hilltown.

Cambria County.

W. B. Lowman,	Johnstown.
J. C. Sheridan,	"

Carbon County.

M. J. Donnelly,	Summit Hill.
J. B. Tweedle,	Weatherly.
J. G. Zern,	Weissport.

Permanent Member:—

R. Leonard,	Mauch Chunk.

Centre County.

Philip S. Fisher,	Zion.
E. A. Russell,	Fleming.
F. H. Van Valzah,	Spring Mills.

Chester County.

R. B. Carey,	Glen Lock.
Thos. D. Dunn,	West Chester.
F. W. Frankhauser,	Blue Rock.
G. G. Groff,	Lewisburg (Union Co.).
Thos. D. Ingram,	West Chester.
Isaac Massey,	"
Ellwood Patrick,	West Whitehead.
Henry R. Price,	Kennett Square.
J. T. Rothrock,	West Chester.
S. H. Wollerton,	"

Permanent Members:—

J. Willis Houston,	Oxford.
J. H. Stubbs,	London Grove.

Clearfield County.

Davis A. Hogue,	Houtzdale.
Samuel C. Stewart,	Clearfield.
Thos. Tobin,	Williamsgrove.

Permanent Members:—

W. J. Smathers,	DuBois.
H. B. Van Valzah,	Clearfield.

Columbia County.

L. B. Kline,	Catawissa.

Permanent Members:—

B. F. Gardner,	Bloomsburg.
H. W. McReynolds,	"
W. M. Reber,	

Crawford County.

Permanent Member:—

Geo. O. Moody,	Titusville.

Cumberland County.

Permanent Member:—

R. Lowry Sibbet,	Carlisle.

Dauphin County.

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John T. Criswell,	"
Christian M. Fager,	"
Jane K. Garver,	"
Hugh Hamilton,	"
C. A. Rahter,	"
J. P. Seiler,	"
Geo. D. Stahley,	"
John J. Stees,	"
Henry B. Walter,	"

Permanent Members:—

W. T. Bishop,	Harrisburg.
Thos. J. Dunott,	"
Henry L. Orth,	"
H. O. Witman,	"

Delaware County.

Wm. B. Fish,	Elwyn.
Thos. C. Stellwagen,	Media.

Permanent Members:—

W. T. W. Dickeson,	Media.
Isaac N. Kerlin,	Elwyn.
Wm. B. Ulrich,	Chester.

Elk County.

E. O. Bardwell,	Emporium (Cameron Co.).

Erie County.

J. L. Stewart,	Erie.

Fayette County.

Ellis Phillips,	New Haven.
J. T. Shepler,	Dunbar.

Franklin County.

John Montgomery,	Chambersburg.

Huntingdon County.

Permanent Member:—

A. B. Brumbaugh,	Huntingdon.

Indiana County.

Wm. B. Ansley,	Saltsburg.
S. R. Rutledge,	Blairsville.

Jefferson County.

W. M. B. Gibson,	Reynoldsville.

Lackawanna County.

J. W. Gibbs,	Hyde Park, Scranton.

Lancaster County.

S. Atlee Bockius,	Columbia.
J. C. Brobst,	Litiz.
Jacob Charles,	Lancaster.
Alexander Craig,	Columbia.
J. Francis Dunlap,	Manheim.
J. Augustus Ehler,	Lancaster.
A. J. Herr,	"
E. R. Hershey,	Paradise.
John B. Kohler,	Lancaster.
J. M. Lightner,	Ephrata.
D. J. McCaa,	"
J. L. Mowry,	Conestoga.
I. A. E. Reed,	Lancaster.
Martin Ringwalt,	Rohrerstown.
T. M. Rohrer,	Lancaster.
J. H. Sherk,	Litiz.
J. W. Trabert,	Annville (Lebanon Co.).
Jas. P. Ziegler,	Mt. Joy

Permanent Members:—

John L. Atlee,	Lancaster.
John K. Lineaweaver,	Columbia.

Lehigh County.

E. G. Martin,	Allentown.

Luzerne County.

R. Davis,	Wilkesbarre.
J. C. Rippard,	"
C. A. Spencer,	Dallas.
Lewis H. Taylor,	Wilkesbarre.

Lycoming County.

Rita B. Church,	Williamsport.
Thos. Lyon,	"
Geo. D. McNutt,	"
Jean S. Saylor,	"
Jas. W. Young,	"

Mifflin County.

R. A. Campbell,	Lewistown.
G. G. Harman,	Reedsville.
V. I. McKim,	Lewistown.
W. S. Wilson,	McVeytown.

Permanent Member:—

A. Rothrock,	McVeytown.

Montgomery County.

Herbert A. Arnold,	Lower Merion.
R. H. Chase,	Norristown.
J. Davis,	Pottstown.
Anna S. Kugler,	Ardmore.
P. H. Markley,	Hatboro.
G. K. Meschter,	Worcester.
Wm. Savery,	Bryn Mawr.
S. C. Seiple,	Centre Square.
Chas. Z. Weber,	Norristown.
S. N. Wiley,	"

Permanent Members:—

J. W. Anderson,	Ardmore.
D. R. Beaver,	Conshohocken.

Alice Bennett,	Norristown.
E. M. Corson,	"
Hiram Corson,	Plymouth Meeting.
Wm. Corson,	Norristown.
H. H. Drake,	"
P. Y. Eisenberg,	"
I. Newton Evans,	Hatboro.
W. McKenzie,	West Conshohocken.
C. H. Mann,	Bridgeport.
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J. K. Reid,	Conshohocken.
G. P. Sargent,	Bryn Mawr.
Geo. M. Stiles,	Conshohocken.
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H. H. Whitcomb,	"
F. V. Van Artsdalen,	

Montour County.

Isaac Pursell,	Montour.
S. S. Schultz,	"

Northampton County.

H. H. Abernethy,	Easton.
D. Engleman,	"
G. T. Fox,	Bath.
J. S. Hunt,	Easton.
Chas. McIntire, Jr.,	"
Jos. Mixsell,	"
Wm. H. Seip,	Bath.
Abraham Stout,	Bethlehem.
L. S. Zeiner,	Easton.

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Henry Beates, Jr.,	"
Edw. T. Bruen,	"
Ross R. Bunting,	"
Chas. H. Burnett,	"
John B. Deaver,	"

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John T. Eskridge,	"
H. F. Formad,	"
Morris Stroud French,	"
Samuel W. Gross,	"
L. Brewer Hall,	"
I. Minis Hays,	"
F. B. Hazel,	"
Frederick P. Henry,	"
E. C. Hine,	"
Wm. Hunt,	"
Chas. T. Hunter,	"
Wm. W. Keen,	"
Joseph V. Kelly,	"
S. R. Knight,	"
Horace Ladd,	"
Henry Leffmann,	"
J. Livingston Ludlow,	"
A. W. McCoy,	"
J. A. McFerran,	"
J. Ewing Mears,	"
Chas. K. Mills,	"
E. E. Montgomery,	"
F. Muhlenberg,	"
J. H. Musser,	"
C. B. Nancrede,	"
Andrew Nebinger,	"
G. D. O'Farrell,	"
M. O'Hara,	"
C. A. Oliver,	"
W. H. Parish,	"
F. M. Perkins,	"
W. G. Porter,	"
A. Graham Reed,	"
Elliott Richardson,	"
Wm. M. L. Rickards,	"
John B. Roberts,	"
Carl Seiler,	"
C. M. Seltzer,	"
John V. Shoemaker,	"
W. S. Stewart,	"
J. Howard Taylor,	"

Chas. H. Thomas,	Philadelphia.
Chas. S. Turnbull,	"
Geo. W. Vogler,	"
J. W. Walk,	"
Jas. B. Walker,	"
W. M. Welch,	"
De Forrest Willard,	"
J. C. Wilson,	"
Frank Woodbury,	"
W. M. L. Ziegler,	"

Permanent Members:—

Oscar H. Allis,	Philadelphia.
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J. M. Barton,	"
Wilson Buckby,	"
J. Solis Cohen,	"
A. C. Deakyne,	"
Thos. M. Drysdale,	"
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Geo. B. Dunmire,	"
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Samuel D. Gross,	"
Nathan Hatfield,	"
N. L. Hatfield,	"
Joseph Hearn,	"
Edwin Hellyer,	"
W. C. Hollopeter,	"
P. D. Keyser,	"
R. J. Levis,	"
Wm. S. Little,	"
A. K. Minich,	"
J. D. Nash,	"
J. R. Partenheimer,	"
Wm. Pepper,	"
S. D. Risley,	"
Jos. D. Schoales,	"
Albert H. Smith	"
Henry H. Smith,	"
Geo. E. Stubbs,	"

Wm. T. Taylor,	Philadelphia.
L. Turnbull,	"
James Tyson,	"

Schuylkill County.

J. H. B. Amick,	Schuylkill Haven.
J. C. Biddle,	Shenandoah.
J. S. Callan,	"
D. J. Langton,	"
C. Lenker,	Schuylkill Haven.
Thos. Lewis,	Mahanoy City.
D. J. McKibben,	Ashland.
Robt. N. Ramsey,	Mahanoy City.
E. W. Samuel,	Mt. Carmel.
Mary Alice Swayze,	Pottsville.

Permanent Member:—

A. B. Spencer,	Girardville.

Snyder County.

J. F. Kanawall,	Penn's Creek.
A. M. Smith,	Beaver Springs.

Permanent Members:—

H. H. Bordner,	Beavertown.
R. Rothrock,	Middleburg.
John Y. Shindel,	"

Venango County.

Permanent Member:—

S. Gustine Snowden,	Franklin.

Warren County.

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F. A. Shugert,	Tidioute.
D. V. Stranahan,	Warren.

Permanent Member:—

John Curwen,	Warren.

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J. Y. Scott,	Bentleysville.
C. B. Wood,	Monongahela City.

Westmoreland County.

J. W. Anawalt,	Greensburg.
J. A. Fulton,	Delmont.

York County.

Jas. W. Kerr,	York.
W. S. Roland,	"
Chas. F. Spangler,	"
Geo. P. Weaver,	Hanover.
Geo. P. Yost,	Logansville.

Permanent Member:—

J. A. Thomson,	Wrightsville.

Ex-officio Delegates.

Wm. Varian, *President*, Titusville, Crawford Co.
Addinell Hewson, *Vice-President*, Philadelphia.
E. P. Allen, *Vice-President*, Athens, Bradford Co.
A. Thayer, *Vice-President*, Erie, Erie Co.
A. M. Miller, *Vice-President*, Bird-in-Hand, Lancaster Co.
Wm. B. Atkinson, *Permanent Secretary*, Philadelphia.
Edw. Jackson, *Recording Secretary*, West Chester, Chester.
John G. Lee, *Corresponding Secretary*, Philadelphia.
Benjamin Lee, *Treasurer*, Philadelphia.

Representative from Delaware State Medical Society.

Wm. Marshall,	Milford.

Representatives from New Jersey State Medical Society.

W. M. L. Phillips,
H. M. Weeks,

The Society was welcomed by Dr. Hiram Corson, Chairman of the Committee of Arrangements, as follows:—

Mr. President: In accordance with the wishes of the Montgomery County Medical Society, it has become my pleasant duty to welcome you to Norristown. We regard it a high privilege to be able to express by deeds as well as by words the pleasure we shall have in ministering to your comfort during your stay with us.

It has been quite usual in other counties, on occasions like this, to give a brief history of the county: its varied industries, its mineral resources, and the historic events identified with it. This has not seemed to me necessary; but in deference to the views of those who differ from me, I may say that this small town of sixteen thousand inhabitants, with its fine private and public buildings, its nu-

merous churches, its immense hospital for the insane, its well-known and beautiful "Oakland Institute" for girls, its famous Treemount Seminary for young men, and last, but not least, its public schools for every child within its borders, is almost in the centre of a county rich in agricultural resources, and well populated by industrious and intelligent communities. That it has the Schuylkill River passing for twenty-five miles through and alongside of it, the banks of which are dotted, along its whole course, with furnaces, foundries, rolling mills, and factories, which give employment to thousands of persons, and yield products the value of which is counted by millions.

Assembled here to-day we are on the margin of a valley which extends the whole width of the county, and seen from the neighboring hill-top, barely a quarter of a mile away, is of surpassing beauty and fertility, and almost without a rival in the variety and wealth of its minerals; its lime and moulding sand; its clay and kaolin; its white and blue and variegated marbles; its masses of lime rock, and its veins and beds of iron ore.

Looking over this valley this evening from the summit of Sandy Street, near Treemount Seminary, you may see, six miles away, the fort where General Washington was in danger of surprise and capture, by British troops from Philadelphia, on the morning of the 4th of December, 1777, but was saved, as history has it, by the courage and strategy of good Lydia Darrah. A slight turn southward, and Barren Hill—historic Barren Hill—coupled for all time in American history with the name of Lafayette, is before you.

In the old church where the steeple of the new one glistens in the evening sun the young and brilliant French Marquis had his "headquarters." It was there that in the dawn of a winter's morning he was confronted by the British General Grant and two thousand soldiers, who, by a rapid and stealthy night-march, had arrived at Plymouth Meeting in the very centre of the valley, and only three miles from the spot where we stand to make our observations, and nearer than was Lafayette to the only ford by which he could cross the river to escape. Another slight turn southward, to where you see such volumes of steam and smoke. That busy town is Conshohocken. It was there—a region, then with scarcely a home—that Lafayette and his handful of men, fleeing from Barren Hill, pressed by the British soldiery, and fighting as they went, passed through the waters of the Schuylkill and were saved. Now a slight turn westward, and at a single glance you can see the whole width of that long sweep of valley, which, leaving our county and widening as it goes, trends westward through Chester and Lancaster Counties, and on and on, to West Virginia; the turbid waters of which region, as a mighty flood, swept for centuries through this long Pennsylvania valley, and submerged all South Jersey. Satisfied with your view of the valley, turn your eyes to the setting sun, and see that long, dark, wooded hill, which forms its northern boundary, and is only five miles away. That is "Valley Forge Hill," where Washington and his suffering soldiers spent the dread winter of 1777–78. At its base on the north side is the Valley Forge home of Washington. On the valor of that little band of

patriot soldiers, entrenched on that hill and braving cold and hunger, hung the hopes and were concentrated the prayers of the infant nation. It was there that Washington guarded, aye! and preserved the young and imperiled life of this now great Republic, which stretches from ocean to ocean, from Canada to the Gulf of Mexico, from "Vancouver's Land" to the Gulf of California. And now I fancy you are with me at the Valley Forge home of Washington, on the margin of the Schuylkill. Let me call your attention to that princely mansion on the opposite side of the river. How beautiful the situation!—so near to the river, and so elevated as to command a view of its waters all the way to Norristown. That was once the home of John James Audubon. There in the woods which stretched for miles around him, and along the Schuylkill and Perkiomen Rivers, he began the series of observations, afterwards continued year after year, in the vast solitudes reaching to the Ohio and Mississippi Rivers; and on the coasts, the lakes, the rivers, and mountains from Labrador to the Gulf of Mexico; and which culminated in the production of a work entitled "Birds of America," which, in the language of the celebrated Cuvier, is the most magnificent monument that art has ever erected to ornithology. Professor Wilson, of Edinburgh, too, in speaking of him, said: "The hearts of all who were capable of conceiving the difficulties, dangers, and sacrifices that must have been encountered, endured, and overcome, before genius could have embodied these, the glory of innumerable triumphs, warmed to Audubon, the greatest artist in his own walk that ever lived." Allow me to add that those only who have seen his great work entitled "Birds of America," illustrated with 448 plates of one thousand and sixty-five species of birds of the natural size, beautifully colored, and for which he had numerous subscriptions of one thousand dollars per copy, can at all appreciate the great labor he performed, and his rare qualifications for the work. Nor was he only thus identified with our county. It was here that he wooed and won and wed the beautiful Miss Bakewell.

But we must not tarry longer here. Come with me a few miles further east, and only four miles from Norristown, to the less pretentious home of David Rittenhouse. We will stand where he stood when he observed the transit of Venus and wrote his name forever on the Morning Star. Again, a few miles further, yet still within our county, and we shall be in the region selected by emigrants from the Fatherland, in which to dwell in peace, and worship without molestation. Moral, frugal, industrious, promoters of education, they have enriched and beautified that section of our county; have given two governors to this great Commonwealth; and to our profession a man—greater than governors—endeared to us all, and known and honored the world over, where science is cultivated. Need I pronounce the name of Dr. Joseph Leidy? A scientist unsurpassed in this or any other country.

But we did not invite you here, nor did you come, to worship at these, our shrines. You are here for earnest, responsible work. As the conservator of the public health, as the ameliorator of human suffering, no profession bears comparison with ours in the universality of its ministrations and the relief which it brings to those who suffer. There is no hovel so mean that we refuse to enter; no

mansion so grand that we are not in it welcome guests; no person so degraded that the profession denies him relief; not one so rich or powerful that he does not appeal to it for succor in his hour of peril. There is not a habitation in town or city, on hill-side or valley, or mountain top, into which we do not enter to combat disease. How responsible, then, are our duties! How important that our weapons should be of the best, and we ready for every emergency!

In view of these great responsibilities, you have come from your homes, at expense of time and money, to mingle with each other, and by interchange of opinions and the acquisition of new facts, to better fit yourselves for the successful performance of your great duties.

It is not my privilege to suggest to you subjects that should claim your attention while here. That belongs to our President.

But allow me, I entreat you, in these days of unwearied investigation into the *causes* of disease, to remind you that of all causes ever named by human lips not one equals, in potency to produce disease and human misery, the use of alcoholic drinks as beverages.

In the earnest hope that we shall, before we separate, by some act of ours, cheer the hearts and strengthen the hands of those friends of humanity who are laboring to remove this cause of disease and premature death, I again, in the name of the people of Norristown, and in the name of every member of the Montgomery County Medical Society, bid you welcome, thrice welcome, to the comforts and hospitalities of our homes.

Dr. M. L. Nardyz, of Philadelphia, was invited to participate in the proceedings.

The Committee of Arrangements presented a programme for the sessions, which was adopted. (See page 48.)

Dr. Wm. Varian, Chairman of Delegation to American Medical Association, presented his report, which was read and accepted.

Report of Delegates to American Medical Association.

Your delegates would respectfully report that the American Medical Association assembled in St. Paul, Minnesota, on the 6th of June, 1882, and was very largely attended by prominent members and delegates from every portion of the United States and territories. In the absence of Surgeon Woodward, the President of the Association, P. O. Hooper, M.D., of Arkansas, the Senior Vice-President, presided over the meetings, and proved an efficient and impartial presiding officer.

The Association were warmly welcomed by General Lucius F. Hubbard, Governor of the State of Minnesota, in an eloquent and stirring address.

Numerous protests from State and county societies against the admission of delegates from the Medical Society of the State of New York were read and referred to the Judicial Council. The Judicial Council in their report upon this subject decided that the New York State Medical Society were not entitled to representation by delegates in the American Medical Association. This report was unanimously endorsed by the Association. Beyond the usual routine

business which, although of importance, was not of sufficient interest to be worthy of a report to this body, the only legislation of interest and novelty was the adoption of the report on the publication of the proceedings, made by Dr. J. H. Packard, of this Society; and the appointment of a committee, of which N. S. Davis, of Chicago, was chairman, to ascertain the feasibility of establishing a journal under the auspices of the Association, and to report at the next meeting. It is also worthy of mention that the Association adopted the resolution offered by Dr. A. L. Gihon to the effect "that it will be conducive to justice and to the dignity of the profession if medical expert testimony can be presented to the courts without the appearance of bias or influence from either side of the case, and simply as a straightforward statement of scientific facts." The Association honored itself, and our Society, by electing to the presidency the venerable John Light Atlee, of Lancaster, whose long-continued activity in medicine and surgery, and prominence as a Society man, has placed him upon the highest pinnacle of personal and professional eminence.

To speak of the numerous addresses in detail would perhaps be fatiguing to the Society; yet, where all were worthy of the highest praise, it will perhaps not be invidious to specially mention the Address on Obstetrics by Prof. Marcy, which, in addition to the evidence of thought and labor in its preparation, was illustrated and illuminated by means of the solar microscope; which proved a valuable new departure in adding to the interest of the address. Also the address of Surgeon Gihon on State Medicine; who, by his incisive language, trenchant sarcasm, and brilliant wit, made a marked impression on his audience.

The members of the Association individually and collectively were overwhelmed with the kindness and hospitality of the citizens of St. Paul and of the State of Minnesota, and adjourned with the feeling that never before had they enjoyed themselves so entirely, both mentally and physically.

WM. VARIAN, M.D.,
Chairman.

The Corresponding Secretary, Dr. JOHN G. LEE, presented the following as the only communication received by him:—

WEST CHESTER, PA., May 1, 1883.

JOHN G. LEE, M.D., *Corresponding Secretary of the Medical Society of the State of Pennsylvania.*

DEAR DOCTOR: At a stated meeting, held February 13, 1883, the Chester County Medical Society adopted the following schedule to guide its Board of Medical Examiners, as to what should qualify the applicant to enter upon the study of medicine.

I. A good high school education in the English language; to be tested by a short essay upon some given subject, and such further examination in spelling, reading, and grammar, as may be necessary.

II. Latin, Cæsar's Commentaries, Virgil's four books, or an equivalent.

III. History, general outlines.

IV. Geography.

V. Mathematics, arithmetic, complete; algebra, through quadratic equations; geometry, plane geometry.

VI. Natural philosophy, general principles as taught in such elementary works as Balfour Stewart's.

VII. Chemistry, a thorough understanding of general principles and nomenclature, such as may be obtained from the first 300 pages of Roscoe's Elementary Chemistry.

VIII. Geology, the equivalent of Dana's text-book.

IX. Botany, outlines of vegetable anatomy and physiology, and ability to identify ordinary plants.

X. Outlines of comparative anatomy and comparative physiology.

Forwarded by direction of the Society,

EDWARD JACKSON,
Recording Secretary.

On motion, action on this matter was postponed until later.

Dr. BENJ. LEE, of Philadelphia, offered the following:—

Resolved, That the Correspondents of the Library of the State Medical Society be instructed to report to this Society at its next meeting as to the propriety of procuring a room as a library for this Society in the city of Philadelphia.

On motion of Dr. W. T. BISHOP, of Dauphin Co., the matter was postponed until Thursday.

The Committee on State Board of Health presented the following:—

Report of the Committee on "A State Board of Health."

Your Committee beg leave respectfully to report: That, warned by previous failures, they took pains that the bill to be presented to the present legislature should be as free as possible from all features which might be objectionable to the legislative mind. It was made as brief as was consistent with clearness, its provisions were made as far as possible general rather than specific, and the amount of expenditure which it proposed was extremely small in comparison with the grandeur of the ends to be attained. It is submitted in full at the conclusion of this report. This bill was introduced into the Senate by the Hon. Robert Adams, Jr., during the first week of the session, and shortly after in the House of Representatives by Hon. Henry K. Boyer. Engrossed copies of the bill were prepared for both Houses, and printed copies were furnished to the members together with printed copies of the following memorial in the name of the Society, and bearing the signatures of such of its members as had been authorized at previous meetings of the Society:—

To the Honorable, the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met:

The undersigned, on behalf of the State Medical Society, and of the medical profession in every section of the State, desire respectfully to call the attention of your honorable bodies to the fact that

they are again petitioned to pass an enactment for the better protection of the lives and health of the people of this Commonwealth.

The following are a few of the considerations which make such an enactment eminently desirable and fitting:—

First. Since the first bill for this object, viz., the "creation of a State Board of Health," was introduced in this Legislature, a period of not less than ten years, the value of such agencies has been amply demonstrated in the lessened death-rate, the improved health, and the increased value of property in those States in which such Boards have been longest in existence and most actively at work.

Second. The results in Massachusetts, which has now enjoyed the protection of a Health Bureau for twelve years, and of Michigan, which has had a similar provision for nine years, have been so encouraging that State after State has followed their example; so that, while but twelve States had established such Boards when our State Medical Society, under a resolution of the American Medical Association, first urged this important subject upon the attention of the Legislature in 1877, there are now but nine States whose governments have failed to appreciate the necessity for providing them with such a safeguard. These are Florida, Kansas, Maine, Missouri, Nebraska, Nevada, Ohio, Vermont, and Pennsylvania. Shall this great Commonwealth be the last to adopt this essential measure of reform? The logic of events is inexorable. No one can fail to see that the adoption of this measure is only a question of time. Your memorialists would suggest that the legislation of the third century of the Commonwealth could not be inagurated in a more dignified or appropriate manner than by enacting a law which would stand as a bulwark for all time against the encroachments of private greed, as well as the insidious attacks of natural morbific influences, upon the public health.

All of which is respectfully submitted.

Your Committee held personal interviews with both of the gentlemen above referred to as having introduced the bill, as well as with other members of the Legislature, furnishing them with facts, figures, and documents, demonstrating the advantages to be derived by the Commonwealth from the establishment of such a board, and it is safe to say that it is to no want of eloquence or energy or careful study of the subject that their efforts were unsuccessful. The measure was rapidly making friends in both Houses, when an amendment was offered proposing to recognize by name and to make it obligatory upon the Governor to appoint upon the Board the adherents of an exclusive dogma in medicine. This was, of course, stoutly resisted by the medical members of the Legislature, who very properly preferred to see the bill fall rather than to have it pass with such a palpable blot upon its face. Your Committee held interviews with many of the most prominent representatives of the school referred to, and these gentlemen united in a petition to the Legislature to enact the bill without such recognition, but the current of favor having once been interrupted it was impossible again to cause it to flow smoothly. Your Committee now addressed a circular to the County Medical Societies, requesting them to send

in petitions at once to the Legislature in favor of the Act, and to use their personal influence with individual friends in that body. To some extent these were responded to, but the bill after being subjected to a number of amendments was finally lost. No previous bill upon this subject has ever received so much attention, or been so fully discussed, and your Committee feel confident that the seed thus sown will eventually bear fruit. If every member of this Society will, in the interval between the present and the next session of the Legislature, make it his business to inform all the members of that body and of the editorial fraternity with whom he may be brought into personal contact of the urgent need for central sanitary supervision in this State, and of the saving of health, life, and wealth which would be effected by it, there can be no reasonable doubt that success would crown the long-continued efforts of the Society. But your Committee consider it absolutely essential that their own exertions should be thus supplemented by the direct personal influence of individual members acting in an unofficial capacity.

All of which is respectfully submitted.

(Signed) W. B. ATKINSON,
H. L ORTH,
BENJAMIN LEE,
Committee.

AN ACT *to establish a State Board of Health for the better protection of life and health, and to prevent the spread of contagious and infectious diseases in this Commonwealth.*

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania, in General Assembly met, and it is hereby enacted by the authority of the same:* That the Governor, by and with the advice and consent of the Senate, shall appoint six persons, a majority of whom shall be physicians of good standing, graduates of regularly chartered and legally constituted medical colleges, and of not less than ten years' experience in the practice of their profession, and one of whom shall be a civil engineer, who, together with the secretary, the mode of whose appointment is hereinafter provided for, shall constitute and be designated as the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Of the six persons first appointed, two shall serve for two years, two for four years, and two for six years, from the first day of July next following their confirmation; and the Governor shall thereafter biennially appoint, by and with the advice and consent of the Senate, two persons of the same professions as those whose terms of office have just expired, to be members of said board, to hold their offices for six years from the first day of July next following their confirmation, and until their successors are appointed, excepting the secretary, who shall continue in office as hereinafter provided; but any member may be reappointed. Any vacancy occurring in said board during a recess of the Legislature, shall be filled by the Governor until the next regular session of the same.

SEC. 2. As soon as possible after the appointment of the first six persons as aforesaid, they shall meet in the office of the Secretary of

the Commonwealth, and shall proceed under the direction of the latter officer, to determine by lot which of them shall serve for the respective terms of two, four, and six years. Before entering upon the duties of the office they shall take the oath prescribed for State officers by the Constitution of the State, and shall file the same in the office of the Secretary of the Commonwealth; who, upon receiving the said oath of office, shall issue to each a certificate of appointment for his respective term of office, determined as aforesaid; upon receiving which they shall possess and exercise the powers and perform the duties of said board, as defined in this Act. Immediately after having taken the oath of office they shall organize by electing one of their number to be president, and by appointing a proper person, who shall be a physician of good standing, of not less than ten years' professional experience, and a graduate of a legally constituted medical college, to be secretary of said board, who shall hold his appointment until removed by the appointment of his successor, or otherwise. The board may elect one of its own members secretary, in which case the vacancy thus created shall be filled by the Governor, in the same manner as a vacancy caused in any other way. The president shall be elected annually. No member of the board, except the secretary, shall, as such, receive any salary, but the actual travelling and other expenses of any member while engaged on the actual duties of the board, shall be allowed and paid on presentation of an itemized account with vouchers annexed.

Sec. 3. The secretary shall be the executive officer of the board, and shall have all the powers and privileges of a member of said board except in regard to voting upon matters relating to his own office and duties as secretary. He shall receive an annual salary of two thousand dollars, which shall be paid him in the same manner that salaries of other State officers are paid; and such necessary expenses as the Auditor General shall audit, on presentation of an itemized account, with vouchers annexed, and the certificate of the board, shall be allowed him.

Sec. 4. The said board shall meet at least once every six months, and may also hold special meetings as frequently as the proper and efficient discharge of its duties shall require, in the capitol building at Harrisburg (unless otherwise ordered), and the rules or by-laws of the board shall provide for the giving of proper and timely notice of all such meetings to every member of the board. The Secretary of Internal Affairs shall provide and furnish such apartments and stationery as said board may require in the discharge of its duties. A majority of the members of the board shall at any regular, called, or adjourned meeting, organize and constitute a quorum for the transaction of business.

Sec. 5. The State Board of Health and Vital Statistics shall have the general supervision of the interests of the health and lives of the citizens of the Commonwealth, and shall especially study its vital statistics. It shall make sanitary investigations and inquiries respecting the causes of disease, and especially of epidemic diseases, including those of domestic animals, the sources of mortality, and the effects of localities, employments, conditions, habits, food, beverages, and medicines on the health of the people. It shall disseminate

information upon these and similar subjects among the people. It shall, when required by the Governor or the Legislature, and at such other times as it deems it important, institute sanitary inspections of public institutions or places throughout the State. It shall codify and suggest amendments to the Sanitary Laws of the Commonwealth.

Sec. 6. It shall be the duty of the State Board of Health and Vital Statistics, to have the general supervision of the State system of registration of births, marriages, and deaths, of prevalent diseases, and of practitioners of medicine and surgery; to prepare the necessary methods, forms, and blanks, for obtaining and preserving such records, and to insure the faithful registration of the same in the several counties and in the Central Bureau of Vital Statistics at the capital of the State. The said board shall recommend such forms and amendments of laws as shall be deemed to be necessary for the thorough organization and efficiency of the registration of vital statistics throughout the State. The Secretary of the State Board of Health and Vital Statistics shall be the superintendent of registration of vital statistics as supervised by said board; the clerical duties and safe keeping of the bureau of vital statistics thus created, shall be provided for by the Secretary of Internal Affairs, who shall also provide and furnish such apartments and stationery as said board shall require in the discharge of such duties.

Sec. 7. It shall be the duty of all health officers and boards of health in the State, to communicate to said State Board of Health, copies of all their reports and publications, and also such sanitary information as may be requested by said board. And said board is authorized to require reports and information (at such times, and of such facts, and generally of such nature and extent as its by-laws or rules may provide) from all public dispensaries, hospitals, asylums, infirmaries, prisons, and schools, and from the managers, principals, and officers thereof, and from all other public institutions, their officers, and managers, and from the proprietors, managers, lessees, and occupants of all places of public resort in the State; but such reports shall only be required concerning matters, or particulars, in respect of which it may in its opinion need information for the proper discharge of its duties.

Sec. 8. Said board may, from time to time, engage suitable persons to render sanitary service, or to make or supervise practical and scientific investigations and examinations requiring expert skill, and to prepare plans and reports relative thereto. But no more than two thousand dollars shall be expended in any one year for such special sanitary service.

Sec. 9. It shall be the duty of said board, on or before the first Monday of December, in each year, to make a report in writing, to the Governor of this State, upon the sanitary condition and prospects of the State; and such report shall set forth the action of the said board and of its officers and agents, and the names thereof for the past year, and may contain other useful information pertinent to the objects for which it was created, and shall suggest any further legislative action, or precaution, deemed proper for the better protection of life and health; and the annual report of said board shall also contain a detailed statement of the State Treasurer of all money

paid out by, or on account of said board, and a detailed statement of the manner of its expenditure during the year last past, but its total expenditure shall not exceed the sum of five thousand dollars in any one year.

SEC. 10. The sum of ten thousand dollars ($10,000) is hereby appropriated from the treasury for the purposes of this Act, and the expenditures properly incurred by the authority of said board, and verified by affidavit, subject, however, to the limitations hereinbefore imposed, and shall be paid by the Treasurer upon the warrant of the Auditor General.

SEC. 11. This Act shall take effect immediately, and all acts, or parts of acts, inconsistent herewith, shall be, and are hereby repealed.

On motion, the report was received, referred to the Committee of Publication, and the Committee was discharged, and the bill, $41.46, ordered paid.

Dr. W. B. ATKINSON presented the report of the Committee of Publication, which was received and referred for publication.

Report of the Committee of Publication.

The Committee of Publication beg leave respectfully to report that they had printed seventeen hundred (1700) copies of the *Transactions* for 1882, constituting a volume of 467 pages, bound in cloth, containing three lithographic plates and two tables, with an index, at an expense, including distribution, of $1257.84. Of these they have distributed—

To County Medical Societies	1541
To State Medical Societies	39
To State Boards of Health	4
To National Board of Health	1
To Medical and other Journals	45
To Library of American Medical Association	1
To Library of Congress	1
To Library of College of Physicians	1
To Libraries of Hospitals	4
To Secretary	1
To Treasurer	1
To Committee on Medical Legislation	1
Archives for binding	2
Disposed of by sale	2
On sale at Blakiston's	10
Remaining on hand in custody of Librarian of Philadelphia County Medical Society	46
Total	1700

The number of copies called for by county medical societies exceeded that of the previous year by sixty-nine.

On behalf of the Committee.

WM. B. ATKINSON,
BENJ. LEE,
EDW. JACKSON.

Dr. O. H. Allis, of Philadelphia, presented the Report on a Schedule for Preliminary Examination of Medical Students.

REPORT OF THE COMMITTEE APPOINTED BY THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA, MAY 11, 1881,

To prepare a Schedule of Subjects upon which preliminary to their entrance upon the study of medicine, applicants shall be required to pass, and the regulations necessary for the enforcement of the same.

Schedule of Subjects.

I. A written statement, previously prepared, setting forth the candidates' course of study.
II. An essay.
III. Writing from dictation.
IV. Spelling, oral and written.
V. Reading.
VI. Geography.
VII. Political economy.
VIII. History, ancient and modern.
IX. Geology.
X. Botany.
XI. Chemistry.
XII. Natural philosophy.
XIII. Mathematics; arithmetic, complete; algebra, through quadratic equations; geometry, through plane geometry.
XIV. Languages; English, standard school edition. Latin and Greek, the degree of proficiency to be left to the judgment of the Examining Board.
XV. Logic and drawing.

Duties and Requirements of County Medical Societies and Medical Examiners.

Every County Medical Society shall require its Examiners strictly to conform to and enforce the foregoing "Schedule," and report the result of each and every examination to its secretary, at the meeting next succeeding said examination. The report shall specify the attainments of the applicant under each head of the schedule.

The Secretaries of the County Medical Societies, or their deputies, shall report at the annual meeting of the Medical Society of the State of Pennsylvania, whatever shall have been done by their respective examiners during the preceding year; and also how many students of medicine have not been examined or reported; and the names of such of their members as have not complied with the requirements of the Medical Society of the State of Pennsylvania. (See Res. State Society, May, 1878.)

FORM OF CERTIFICATE.

See Res. adopted May, 1878.

Medical Society of the State of Pennsylvania.

Certificate of the Examining Board of ..... County.

This is to certify that ..... of ..... has fulfilled the requirements of the Medical Society of the State of Pennsylvania, and is entitled to be enrolled as a Student of Medicine in any Medical School recognized by this Society, or in the office of any physician whose diploma and practice entitle him to membership in any County Medical Society.

Examiners { .....
.....
.....

Date.....

Any County Medical Society which fails or refuses to comply with and enforce the foregoing schedule and requirements, shall forfeit its connection with and representation in the Medical Society of the State of Pennsylvania.

Committee. { OSCAR H. ALLIS, TRAILL GREEN, W. R. FINLEY, J. B. ROBERTS, W. B. ULRICH.

Dr. EDW. JACKSON presented the action of the Chester County Medical Society, and after much discussion, on motion of Dr. W. T. BISHOP, of Dauphin Co., the whole subject was referred to the Nominating Committee with power to substitute members from each county when desired.

Reports of County Medical Societies were called, and several were presented.

On motion of Dr. ATKINSON, those which had not reported were allowed until June 1st.

The amendment offered by Dr. C. K. MILLS to Article IX., Rules of Order, was unanimously adopted.

Resolved, That Rule IX. of the Rules of Order be amended so as to allow a suspension of the rules by a two-thirds vote of the members present.

Dr. HENRY H. SMITH, of Philadelphia, offered the following, which was seconded by Drs. HIRAM CORSON and JOHN L. ATLEE, and was unanimously adopted.

Resolved, That the State Medical Society of Pennsylvania reaffirms its approval of and adhesion to the Code of Ethics adopted by the American Medical Association.

Resolved, That organized opposition by a local society or by individuals to the code approved by the medical profession of the United States, is *Rebellion* against the constituted authorities, and should be so treated.

Resolved, That the Secretary be instructed to forward a copy of these Resolutions to the Committee of Arrangements at Cleveland for presentation to the Association.

On motion of Dr. A. HEWSON, of Philadelphia, the thanks of the Society were given to Dr. HIRAM CORSON for his very eloquent address.

Dr. HEWSON extended an invitation to the members to visit Audubon's Cave.

Dr. BENJ. LEE, by special request, was allowed to exhibit an instrument for the relief of writer's cramp.

On motion, the Society adjourned until afternoon.

Afternoon.

The Society reassembled at 2 P. M.

Dr. W. M. WELCH, of Philadelphia, read a paper on "The Wearing Out of Vaccine Protection and the Efficacy of Re-vaccination."

Dr. JAS. TYSON, of Philadelphia, read the "Address in Medicine."

Dr. R. L. SIBBET, of Cumberland Co., read a paper entitled "Obstetrical Notes."

Dr. HUGH HAMILTON, of Dauphin Co., read a paper entitled "Artificial Alimentation of Infants."

Dr. R. H. CHASE, of Montgomery Co., read a paper entitled "Insane Asylums in some of their Relations to the Community."

Dr. DE F. WILLARD, of Philadelphia, read a paper entitled "Simple Methods of Treatment of Club-foot."

On motion, each paper was referred to the Committee of Publication.

The President, having announced that discussion of the papers was in order, remarks on Dr. CHASE'S paper were made by Dr. JOS. PARRISH, of New Jersey, Dr. J. L. STEWART, of Erie, Dr. W. B. ULRICH, of Delaware Co., Dr. H. CORSON, of Montgomery Co., Dr. S. S. SCHULTZ, of Montour Co., and Dr. W. M. B. GIBSON, of Jefferson County.

Dr. J. T. ESKRIDGE, of Philadelphia, made some remarks on the paper of Dr. TYSON.

On motion, the Society adjourned until evening.

Court House, Evening.

The Society assembled at 7½ P. M.

Vice-President Dr. A. Hewson, in the chair.

The President, Dr. W. Varian, of Crawford Co., delivered the annual address.

On motion, thanks were tendered him, and a copy requested for publication.

On motion, the Society adjourned until Thursday, at 9 A. M.

Thursday, May 10.

The Society met at 9 A. M.

Prayer was offered by Rev. H. M. Kieffer.

The roll of county medical societies was called by the Permanent Secretary, and the following were announced as the members of the Nominating Committee:—

Adams, A. Noel; Allegheny, T. J. Gallaher; Armstrong, R. L. McCurdy; Blair, W. R. Finley; Bradford, E. P. Allen; Bucks, Jos. Foulke; Cambria, W. B. Lowman; Carbon, M. J. Donnelly; Centre, P. S. Fisher; Chester, Edw. Jackson; Clearfield, S. C. Stewart; Columbia, L. B. Kline; Crawford, G. O. Moody; Cumberland, R. L Sibbet; Dauphin, Hugh Hamilton; Delaware, I. N. Kerlin; Erie, J. L. Stewart; Fayette, J. T. Shepler; Franklin, Jno. Montgomery; Huntingdon, A. B. Brumbaugh; Indiana, W. B. Ansley; Jefferson, W. M. B. Gibson; Lancaster, J. A. E. Reed; Lackawanna, J. W. Gibbs; Luzerne, Lewis Taylor; Lycoming, Jas. W. Young; Mifflin, A. Rothrock; Montgomery, S. N. Wiley; Montour, S. S. Schultz; Northampton, C. McIntire; Philadelphia, W. G. Porter; Schuylkill, J. S. Callan; Snyder, J. F. Kanawall; Venango, S. G. Snowden; Warren, F. A. Shugert; Westmoreland, J. A. Fulton; York, W. S. Roland.

Dr. Alexander Craig, of Lancaster Co., read the "Address in Surgery."

Dr. E. A. Wood, of Allegheny Co., read a paper entitled "A Deformity that sometimes follows Dislocation of the Foot Outwards."

Dr. W. Pepper, of Philadelphia, read a paper entitled "A Contribution to the Clinical Study of Typhilitis and Perityphilitis."

Dr. Samuel W. Gross, of Philadelphia, read a paper on "The Thorough Removal of Carcinoma of the Breast," and exhibited cases.

Dr. J. C. Wilson, of Philadelphia, one on "The Treatment of Purulent Pleural Effusions."

Dr. Chas. K. Mills, of Philadelphia, one on "The Medical Service of Insane Hospitals."

A paper by Dr. E. O. Bardwell, of Elk Co., entitled "Some Remarks on Scarlet Fever," was read by title.

Each paper was referred to the Committee of Publication.

Discussion being in order, Dr. C. B. Nancrede, of Philadelphia, made some remarks favoring Dr. Gross's plan of removing the Breast.

Dr. B. Lee, after alluding to some points in the Address in Surgery, presented a circular of the Philadelphia Organization of Charities relative to Surgical Emergencies, and, on motion, it was referred to the Committee of Publication, with instructions to print it immediately next to this address.

The Corresponding Secretary, Dr. J. G. Lee, presented a Report of the Censors of the 6th District relative to the appeal of Dr. D. S. Hayes from the Blair County Medical Society.

On motion, the report was accepted, and the bill for expenses ordered paid.

Altoona, Pa., March 7, 1883.

In the case of Dr. D. S. Hayes, of Hollidaysburg, Pa., *vs.* Blair County Medical Society. Appeal.

The Board of Censors of the Sixth District of Pennsylvania met at Altoona, Pa., March 7, 1883, to consider the appeal of Dr. D. S. Hayes, of Hollidaysburg, Blair County, Pa., from the action of the Blair County Medical Society, in the case of the suspension of the said Dr. Hayes from the Society.

The Board organized by the election of Dr. A. H. Sheaffer, of Lewistown, President; Dr. A. B. Brumbaugh, of Huntingdon, Secretary. Dr. Fay, of Altoona, being a member of the Blair County Society, was excused. The Board then consisted of Drs. A. H. Sheaffer, Lewistown, Pa., A. B. Brumbaugh, Huntingdon, Pa., J. G. Wilson, and upon careful consideration of the case dismissed the appeal, not having been made within the time as specified in Art. 5, Sec. 5, of the Constitution of Pennsylvania State Medical Society, the suspension having taken place June 20, 1882, and the appeal to the censors not made until the 8th or 9th of January, 1883.

Respectfully submitted to the State Society.

Censors. { J. G. WILSON,
A. H. SHEAFFER,
A. B. BRUMBAUGH,
Secretary.

Dr. Hiram Corson presented an appeal on behalf of the American Anti-Vivisection Society, which was read by the Permanent Secretary.

Philadelphia, May 3, 1883.

To the Members of the State Medical Society:

The annual meeting of your association, representing as it does the medical profession of this great Commonwealth, offers, it would

seem, a favorable opportunity for presenting an appeal in behalf of such restrictions upon vivisection as will prevent unnecessary experimentation and needless infliction of suffering upon animals, so that we feel fully satisfied that a subject of so great general interest and recognized importance cannot fail to attract your attention and to secure your earnest and impartial consideration.

For many years past, and for reasons well known to you all, efforts have been made in this direction, and much has been accomplished by those who have opposed unrestricted vivisection. The subject has been discussed in and out of the medical profession by the most intelligent, liberal, and scientific minds, and although vivisection has its powerful array of supporters, it has likewise its earnest and determined opponents, whose position has been strengthened by the hearty co-operation and assistance of many who occupy not only prominent but honored places in the profession you represent, who, after long and impartial investigation, have declared that the beneficial results from discoveries based upon vivisection have been very greatly exaggerated, while it has also been demonstrated and fairly proven that experiments on living animals for the purposes of mere instruction are absolutely unnecessary.

Mr. Lawson Tait, well known for his brilliant surgical achievements, instituted a very laborious and searching historical examination into all the facts which have been brought forward to substantiate the claims of vivisection, and in an address delivered in April, 1882, before the Birmingham Philosophical Society, stated that he had analyzed historically with great care every case brought forward to the utter disestablishment of the claims of vivisection.

The late Sir William Ferguson, who was the highest surgical authority then in England, in his evidence before the Royal Commission, stated as a result of his experience that no surgical advances had been made by vivisection, while the testimony of many others has been equally conclusive and confirmatory, and when such men as Huxley, Erichsen, Sir John Karslake, and others equally noted, in 1875 recommended as a commission legislation on this subject, and legislation even more stringent than Parliament then thought fit to pass; and when in England the opinion of the general public has become so averse to this practice that a bill for the *total abolition* of vivisection has just come up in Parliament for second reading, and is supported by petitions signed by thousands of names, is not at least restriction in vivisection a subject quite worthy of a place in your deliberations?

We do not wish to further discuss the necessity for properly framed restrictive laws, but simply to present the matter for your consideration in the hope that you will, after personal inquiry or otherwise, feel willing to lend your assistance in securing such enactments as will satisfy the demands of science where it can be shown to be required, and at the same time to effectually abolish useless physiological experimentation and all needless repetition of vivisection.

HENRY FLANDERS, *President.*
ADELE BIDDLE, *Secretary.*

On motion, of Dr. J. T. Eskridge, it was referred to a special committee of five members to report next year.

The President appointed (the mover declining to serve) Drs. S. Weir Mitchell, of Philadelphia; H. C. Wood, of Philadelphia; E. A. Wood, Allegheny Co.; H. L. Orth, of Dauphin Co.; W. S. Little, Philadelphia.

On motion of Dr. W. W. Keen, it was—

Resolved, That the Medical Society of Pennsylvania in view of the very urgent need of enlarged facilities for dissection, both in the medical schools of Pennsylvania and also by physicians throughout the entire State, a privilege now denied them, most earnestly urge upon the Legislature of Pennsylvania the passage of the pending Anatomy Bill as now before the House in its amended form.

Dr. Samuel D. Gross, of Philadelphia, asked the Permanent Secretary to read the following:—

As the result of the report of the Surgeon-General of the Army, setting forth the urgent necessity for a new and commodious fire-proof building for the Army Medical Museum and the library of his office, supported as it was by a general and decided expression by the medical profession of the country, of opinion that such a building should be provided, the Committee on Public Buildings and Grounds of the House of Representatives of the last Congress submitted a report in favor of the granting such a building, and a bill making an appropriation for this purpose.

Unfortunately this report was made too late in the session to be acted upon, and as the next Congress is a new one the matter must be presented anew. It is highly desirable that the medical profession of the country should express to Congress their view of the importance and value of the library and museum to medical literature and higher medical education in this country, and should urge—

1. That the library and museum should not be separated, but retained under the direction of the Medical Department of the Army.
2. That a commodious fire-proof building be at once provided for them.
3. That the annual appropriation for the support of the library be increased so that the library shall be able to obtain every new medical book published in the world, and also to complete its deficiencies.
4. That authority be given to complete the Index-Catalogue.

Those physicians who are acquainted with members or senators should, during the present summer, call their attention to this matter in conversation or by letter, and explain to them that it is not merely the wishes of a Department Bureau that are concerned, but the interests of the whole medical profession.

On motion of Dr. Gross, the following preamble and resolutions were adopted:—

Whereas, This Society has observed with regret that the bill reported in the last session of Congress by the Committee on Public

Buildings recommending the erection of a fire-proof building to contain the library and museum of the Surgeon-General's office was passed over in the pressure of business, and, whereas, the medical profession of the whole country is interested in the preservation of the same, therefore resolved—

That in the opinion of this Society it is the urgent duty of the incoming Congress to provide for the erection of a suitable fire-proof building to receive the library and museum above named, so that the books and specimens may be safely kept and made easy of access.

That this Society strongly deprecates any change from the present management of the library and museum, and, above all, the severing of these collections by the merging of the power into the National Library as destructive of its utility.

That it is highly to be desired that Congress should make a sufficient annual appropriation to admit of the purchase of all new medical books and journals wherever published, in order that this, the library of the medical profession of the United States, may maintain its usefulness. It is further recommended that authority be given to complete the Index-Catalogue.

And it is further resolved, that the members of this Society will regard it as a duty to impress these views, either personally or by letter, on such senators and members of Congress as they may be acquainted with, and that a copy of these resolutions, duly authenticated, shall be sent by the secretary to each representative and senator from this State.

On motion of Dr. Jno. Curwen, of Warren Co., it was—

Resolved, That the President of this Society be requested to appoint a committee of three members on each of the following branches:—

Medicine,
Surgery,
Diseases of women and children,
Ophthalmology and otology,
Nervous diseases,
Insanity and idiocy,

to prepare a series of questions calculated to obtain the history, symptoms, and treatment of the different forms of disease. That when these questions are prepared they be sent to the different members of this Society throughout the State with the request that each member fill out in full one case of the disease specified in the list of questions sent him, and return the same to the chairman of the committee on that branch, so that by this means a collective investigation of the different forms of disease may be made, and thus a more thorough account may be obtained of all the facts bearing on disease in its different stages, and when these answers have been received the different committees shall arrange the facts thus procured for presentation to this Society.

The Permanent Secretary read the following, which, on motion, was referred to the Committee on Nominations:—

MAY 7, 1883.

To the President and Members of the State Medical Society:

GENTLEMEN: At the last meeting of the Society I had the honor of being appointed a Delegate to the American Medical Association from this city. In consequence of the severe illness of my aged mother it was impossible to fulfil the appointment.

Very respectfully your obedient servant,

H. ST. CLAIR ASH.

On motion of Dr. H. H. WHITCOMB, of Montgomery Co., it was—

Resolved, That the minutes of the Permanent Secretary be read at the close of each day's session.

Resolved, That it shall be the duty of the Committee of Publication to publish annually the entire programme of the Society in the form in which it is presented, and, as a supplement to it, to publish such amendments, resolutions, or items of business as should appear upon the next annual programme.

On motion of Dr. JNO. L. ATLEE, the action of the Society discharging the Committee on a State Board of Health was reconsidered, and the Committee was continued.

On motion, the Society adjourned until afternoon.

Afternoon.

The Society reassembled at 2 o'clock.

Dr. EDW. JACKSON read the report of the Nominating Committee.

President.

HENRY H. SMITH,	Philadelphia County.

Vice-Presidents.

1st. ELLIS PHILLIPS,	Schuylkill County.
2d. H. B. VAN VALZAH,	Clearfield "
3d. J. W. KERR,	York "
4th. S. S. SCHULTZ,	Montour "

Permanent Secretary.

WM. B. ATKINSON,	Philadelphia County.

Recording Secretary.

MORRIS S. FRENCH,	Philadelphia County.

Corresponding Secretary.

JOHN G. LEE,	Philadelphia County.

Treasurer.

BENJ. LEE,	Philadelphia County.

Additional Members of the Committee of Publication.

HUGH HAMILTON,	Dauphin County.
JAMES TYSON,	Philadelphia County.
CHAS. S. TURNBULL,	" "

Members of Judicial Council.

A. ROTHROCK,	Mifflin County.
GEO. O. MOODY,	Crawford County.
WM. PEPPER,	Philadelphia County.

The Society to meet next year in Philadelphia. JOHN B. ROBERTS, Chairman of the Committee of Arrangements. His associates to be selected by the Philadelphia County Medical Society.

Delegates to American Medical Association.

S. R. RUTLEDGE,	Indiana County.
J. L. STEWART,	Erie "
R. A. CAMPBELL,	Mifflin "
GEO. F. HORTON,	Bradford "
W. S. ROLAND,	York "
J. W. C. O'NEAL,	Adams "
R. ROTHROCK,	Snyder "
R. L. MCCURDY,	Armstrong County.
W. T. BISHOP,	Dauphin "
DAVID ENGLEMANN,	Northampton "
E. A. WOOD,	Allegheny "
T. J. GALLAHER,	" "
JOHN SEMPLE,	" "
J. WILLIS HOUSTON,	Chester "
THOMAS LYON,	Lycoming "
J. T. SHEPLER,	Fayette "
OSCAR H. ALLIS,	Philadelphia "
H. W. MCREYNOLDS,	Columbia "
J. B. TWEEDLE,	Carbon "
H. ST. CLAIR ASH,	Philadelphia "
J. C. SHERIDAN,	Cambria "
C. LENKER,	Schuylkill "
R. H. CHASE,	Montgomery "
HARVEY KRATZ,	Bucks "
A. M. MILLER,	Lancaster "
M. L. HERR,	" "

Delegates to the Medical and Chirurgical Faculty of Maryland.

Hugh Hamilton,	Dauphin County.
C. F. Spangler,	York "
Edward Jackson,	Chester "
E. T. Bruen,	Philadelphia County.
R. S. Seiss,	Adams "
F. P. Henry,	Philadelphia "

Delegates to the Ohio State Medical Society.

C. B. Kibler,	Erie County.
J. G. Cunningham,	Armstrong County.
Chas. T. Hunter,	Philadelphia "

Delegates to the New Jersey State Medical Society.

Thos. D. Dunn,	Chester County.
H. H. Whitcomb,	Montgomery County.
Henry Leffmann,	Philadelphia "
J. T. Eskridge,	" "
Joseph Hern,	" "
E. M. Corson,	Montgomery "
G. D. Nutt,	Lycoming "

Delegates to the West Virginia State Medical Society.

Geo. M. Stiles,	Montgomery County.
W. J. Asdale,	Allegheny "
Chas. S. Turnbull,	Philadelphia "

Delegates to the Delaware State Medical Society.

Henry Price,	Chester County.
Wm. G. Porter,	Philadelphia County.
J. C. Wilson,	" "
L. K. Baldwin,	" "
Jas. A. McFerran,	" "

Delegates to the Massachusetts State Medical Society.

E. P. Allen,	Bradford County.
P. B. Breinig,	Northampton County.
Alice Bennett,	Montgomery "
Geo. H. Halberstadt,	Schuylkill "

Resolved, That this Committee recommends that the Publication Committee be instructed to have the *Transactions* of the Society printed and ready for distribution within three months from the date of final adjournment of the Society.

Changes in the Board of Censors; New Censors.

2d District	R. Leonard,	Carbon County.
6th "	John Lowman,	Cambria "
8th "	James McCann,	Allegheny "
10th "	Ellis M. Farrelly,	Crawford "
11th "	Frank Van Valzah,	Centre "
12th "	W. M. Reber,	Columbia "
12th "	Isaac Pursell,	Montour "
13th "	H. C. Scott,	Bradford "

On motion, the report was adopted, and these were declared the officers, etc., for the ensuing year.

On motion of Dr. W. B. Atkinson, the President and Permanent Secretary were empowered to fill any vacancies that might occur in the various delegations.

Dr. George O. Moody, of Crawford Co., read the "Address in Obstetrics."

Dr. Henry Leffmann, of Philadelphia, read the "Address in Hygiene."

The following papers were read:—

"Our Asylums and Our Insane," by Dr. Samuel Ayres, of Allegheny.

"Surgical Expedients in Emergencies," by Dr. R. J. Levis, of Philadelphia.

"Ophthalmological Observations during Ten Years' Service in Wills Eye Hospital," by Dr. P. D. Keyser, of Philadelphia.

"Remarks on the Cure of Rodent Ulcers, with Presentation of Cases," by Dr. Joseph Hearn, of Philadelphia.

"The Hair, its Use and its Care," by Dr. J. V. Shoemaker, of Philadelphia.

Dr. Shoemaker also exhibited a case of lupus.

The papers were each referred to the Committee of Publication.

The Treasurer, Dr. B. Lee, presented his report, which was read and referred to Drs. I. Pursell and T. Lyon as auditors.

Dr. O. H. Allis, on behalf of the Committee, presented the report on Schedule of Subjects for Examination of Medical Students.

After considerable discussion by Drs. S. D. Gross, Whitcomb, Ulrich, Jackson, Tyson, Bishop, M. J. Donnelly, Uhler, Allis, Finley, and others, on motion of Dr. T. J. Gallaher, the report was adopted by a large majority.

On motion of Dr. Allis, it was—

Resolved, That the Permanent Secretary of the Medical Society of the State of Pennsylvania be directed to print two thousand

copies of the "Report of the Committee appointed by the Medical Society of the State of Pennsylvania upon Schedule of Subjects for Examination of Medical Students;" and to issue (within one month from the adjournment of this Society) one to each member of the various county medical societies of the State of Pennsylvania.

Dr. S. D. Gross offered the following, which was adopted:—

Whereas, Good and well-trained nurses are of the utmost importance in every sick chamber as means of promoting the comfort of the patient, and his restoration to health; therefore,

Resolved, That the physicians of every county represented in this Society be requested to institute, at suitable points, courses of instruction on the art and science of nursing for such persons, male and female, as may be desirous of availing themselves of its benefits.

Dr. R. L. Sibbet presented the report on Medical Legislation, and on motion of Dr. Gallaher, the report was received, the bill ordered paid, and the Committee were discharged with thanks for their able and faithful services during the past ten years.

Report on Medical Legislation.

Mr. President: The Committee on Medical Legislation respectfully report that the statistics of registration of medical practitioners of the twenty-one counties which had not been heard from at the time of our last meeting were collected with the aid of members of the profession and the prothonotaries. The numbers were inserted in the tables, and the whole were condensed and have been published in our *Transactions*. The reports from all the counties show that 6492 practitioners had registered at the time when the reports were made, and that 838 of these were non-graduates.

During the summer a supplement was prepared and sent around to the leading members of the committee for suggestions and approval. It reads as follows:—

An Act *Supplementary to an "Act to Provide for the Registration of all Practitioners of Medicine and Surgery.*

Section 1. *Be it enacted, etc.:* That the duties imposed upon the Faculties of the Medical Colleges and Universities in this Commonwealth set forth in the fourth section of an "Act to Provide for the Registration of all Practitioners of Medicine and Surgery," approved June 8, 1881, are hereby transferred to and imposed upon the Board of Health of this Commonwealth; in like manner the duties imposed upon medical practitioners set forth in the same section of said act are hereby extended to and imposed upon all persons who may desire to commence the practice of medicine or surgery; and said Board of Health being satisfied as to the genuineness of the medical diploma presented to them for inspection, and also being satisfied as to the qualifications of the holder of such diploma to practise medicine or surgery, shall direct their secretary to endorse the same; after which the prothonotary may register such practitioner as indicated in said Act of Assembly.

SEC. 2. Said Board of Health shall have the supervision of the registration of all practitioners of medicine and surgery; they shall appoint a committee in and for each county, to be composed of three or more resident practitioners, whose duty it shall be to prepare a report in such manner, and as often as may be ordered by said Board of Health, giving in it the condition of the medical register of their county; they shall make affidavit before the Prothonotary of their county that the report is correct and true, and shall forward the same to said Board of Health.

SEC. 3. If any practitioner has registered or shall register the degree of Doctor of Medicine, and has set forth or shall set forth that the same has been conferred by a medical society, or by an institution which has had a doubtful or precarious existence, or by an institution whose name does not indicate that it has been or is a medical college or university, and it cannot be ascertained that lectures on Human Anatomy, Human Physiology, Materia Medica, Chemistry, the Practice of Medicine and Surgery, and Obstetrics, have been regularly delivered in such institution, said Board of Health shall notify such practitioner to appear before them and to present for inspection his or her medical diploma, together with any catalogue or announcement by which information may be given concerning such institution; and the practitioner, failing to show that his or her diploma was issued by a legally chartered medical college or university, and obtained in a regular manner as provided in said Act of Assembly, said Board of Health shall direct the prothonotary to cancel such registration.

SEC. 4. It shall be the duty of the prothonotary to comply with any request or order issued by said Board of Health pertaining to the registration of medical practitioners.

SEC. 5. The registration of practitioners of medicine and surgery who have not the degree of Doctor of Medicine shall cease three months after the passage of this supplement.

SEC. 6. For non-compliance with the provisions of this supplement the penalty shall be the same as prescribed in said Act of Assembly.

After the fall election copies of this supplemental bill were sent to all the county medical societies in the State with the following address:—

To the County Medical Societies in Pennsylvania:—

The Committee on Medical Legislation and the State Board of Health committee appointed by our State Medical Society agree to have the foregoing supplement introduced into the House of Representatives immediately after the Board of Health bill printed in the Society's Transactions of 1877 has been presented; this bill will be slightly modified. They further agree that the first duty of the profession is to secure the passage of an act to create a State Board of Health, and to confer upon such Board of Health as soon as possible the supervision of the registration of medical practitioners.

In this good work do not suppose that the members of these committees can visit your counties or can become acquainted with your representatives at the capital of our State. We therefore earnestly request you to call a meeting of your medical society, read

these bills, and appoint a committee to visit your representatives and present the subject to them in a clear and forcible manner. Remember that it is necessary to have 101 votes in the House of Representatives for the passage of any bill.

With the hope that we may be successful, through your influence, during the coming session of our Legislature, we remain,

Very respectfully,

R. LOWRY SIBBET, M.D., Carlisle, Pa.
TRAILL GREEN, M.D., Easton, Pa.
HIRAM CORSON, M.D., Conshohocken, Pa.
JOHN L. ATLEE, M.D., Lancaster, Pa.
BENJAMIN LEE, M.D., Phila., Pa.
C. A. RACHTER, M.D., Harrisburg, Pa.
A. M. POLLOCK, M.D., Pittsburg, Pa.
CRAWFORD IRWIN, M.D., Hollidaysburg, Pa.
A. B. BRUMBAUGH, M.D., Huntingdon, Pa.
J. F. ROSS, M.D., Clarion, Pa.

Members of the Committee on Medical Legislation.

When our Legislature had assembled, and the State Board of Health bill referred to had been introduced into both Houses, the chairman of this committee placed in the hands of the Clerk of the House of Representatives for distribution two hundred copies of a memorial which reads as follows:—

To the Honorable, the Senate and House of Representatives of the Commonwealth of Pennsylvania, in General Assembly met:—

The Committee on Medical Legislation, appointed by the Medical Society of the State, respectfully represent that the faculties of the leading medical schools of the State have made complaint that the provisions of the Registration Act of June 8, 1881, require them, in the indorsement of medical diplomas, to discriminate in favor of graduates of Pennsylvania schools, and against those of respectable schools in other States; and that in the opinion of these faculties, and the undersigned memorialists, the State Board of Health, about to be constituted as we trust, composed partly of those not members of the profession, should have entire supervision of the registration of medical practitioners, in accordance with the provisions of said Act of Assembly and the supplemental bill herewith presented.

All of which is respectfully submitted:—

To this were attached two hundred and thirty-eight names of medical gentlemen representing forty-seven county medical societies. At the same time copies of the proposed supplement were laid upon the desks of the members. But the Health bill failed on third reading in both Houses, and of course the supplement was not introduced.

We have now reached a period at which it is proper for this Society to call a halt. Ten years have elapsed since this committee was appointed. You have heard reports from year to year; you know what has been proposed, what has failed, and what has succeeded. With the light we have tried to throw upon the subject from time to time, and that which you have gathered from other sources, you have no doubt reached conclusions which are sound and correct.

If you will allow your committee to use a figure, we would state that during these years of labor and anxiety we have found ourselves in the centre of a circle, the circumference of which has been occupied by numerous objectors. There stood the faculties of our oldest medical schools, the faculties of our homœopathic schools, the faculties of our bogus diploma colleges, the non-graduate practitioners of every grade, itinerant doctors, electricians, spectacle men, chronic-disease men, manufacturers of nostrums, druggists without number wishing to play doctor behind the counter, pedestrians travelling in every county in the State with liniments, pills, diarrhœa mixtures, cough syrups and tinctures. These all we found, like ourselves, professedly interested in the health of the people, but really interested in making money and unwilling to have their business disturbed. For every two hundred and fifty inhabitants in the State there was one such doctor or medicine-man; and we suppose that the ratio has not materially changed since that time. If we had attempted to define the practice of medicine, the whole circle would have laughed at us. Eight years ago we attempted to fix a standard for the matriculate in a medical school, requiring him to present a diploma from a literary school, a diploma from a normal school, or a certificate from a superintendent of public schools of any county of the State, but the bill was defeated. Our legislators did not think that the practitioner of medicine had need for as much education as the teacher of a country school, and the faculties of medical schools did not wish to be disturbed. They did not think that the time had come to make preliminary examination themselves, and they did not care to have any other persons make them. Efforts were made by your committee on other radii of the circle, but with no better success; some of the objectors stood with clubs in their hands; others with money in their pockets. The Registration Act touches only the weak points in the circle; it has scarcely interfered with the business of any one; its benefits are largely prospective; and yet there are some who object to its provisions. The constitutionality of at least one feature of it is to be tested in Luzerne County in a few days. The court has agreed to hear the arguments.

Outside this circle of medical practitioners and medicine-men are the people, thoroughly demoralized, and the representatives of the people—the legislators of Pennsylvania—who are scarcely less demoralized. Their knowledge of medicine has been gathered from the newspapers. The thousand nostrum vendors and advertising quacks have been their teachers since childhood. During the last fifty years the people and our legislators have grown up under such influences, and hence they have no just appreciation of the good intentions of the profession. The press has been subsidized. False names have been applied to us, such as *allopathists*, and every kind of misrepresentation, as if to force us to abandon the path of truth and honor, and to join the advertising crowd.

It must be apparent to all that the evils to which we refer are difficult to reach and not easily corrected. As far as your committee is able to discover there is but one means which promises ultimate success. Our legislators are unwilling to go beyond what they call

public sentiment. To change this sentiment, or at least to modify it, is our business. The people must have something to read on the side of truth and scientific practice. They must be trained to appreciate higher attainments in the profession; and in concluding our report we respectfully suggest the following:—

(1) That four committees be appointed annually by the president, each consisting of four members, two principals and two alternates.

(2) These committees shall be known as—

The Committee on Medical Education.
The Committee on Medical Legislation.
The Committee on Rational Medicine.
The Committee on Public Hygiene.

(3) Each committee shall prepare and read before this Society two addresses or papers in a style suited for the public, and if agreed to by this Society, said committee shall cause them to be published in as many newspapers as possible in the State.

The good results of such papers given to the public in this way must be apparent to all. Our legislators and the people need the information, and this Society should not withhold it. A systematic effort is necessary in order to obtain the favors we ask of our legislature. The work should be done by a large number of persons in different parts of the State, so that the people will understand that the subject is not one which has a local interest.

All of which is respectfully submitted:—

R. LOWRY SIBBET,
HIRAM CORSON,
JOHN L. ATLEE,
JOHN CURWEN,
BENJ. LEE,
A. B. BRUMBAUGH,
S. S. SCHULTZ,
T. J. GALLAHER,
E. GRISWOLD,
RICHARD J. DUNGLISON,
C. A. RAHTER.

On motion of Dr. W. B. Ulrich, it was

Resolved, That all manuscripts for publication in the volume of *Transactions* for this session be required to be in the hands of the Committee of Publication by June 1st or be omitted.

On motion of Dr. Jno. B. Roberts, it was—

Resolved, That a copy of the resolution, passed relative to the Anatomy Act, signed by the President and Secretary of the Society, and by the members of the Nominating Committee, representing each and every county of the State, be forwarded at once to the two Houses of the General Assembly now in session at Harrisburg.

On motion, the Society adjourned until Friday at 9 A. M.

FRIDAY, May 11.

The Society was opened at 9 A. M. with prayer by Rev. A. J. Weddell.

Dr. EDW. JACKSON having offered a resolution for the appointment of an annual address, after some discussion—the order of the day having been called—Dr. JNO. CURWEN read the Address in Mental Disorders.

Voluntary papers in the following order were read:—

"Diagnosis, Prognosis, and Treatment of Mitral Constriction," by Dr. J. T. ESKRIDGE, of Philadelphia.

"Lithæmia," by Dr. JAMES B. WALKER, of Philadelphia.

"Clinical Notes on the Use of Convallaria Majalis," by Dr. EDWARD T. BRUEN, of Philadelphia.

Dr. JACKSON called up his motion, which, after some modification, was adopted:—

Resolved, That at each annual meeting of this Society, the President shall appoint one member; who, at the next succeeding annual session, shall deliver an address on Ophthalmology, Otology, or Laryngology, and their relations to general medicine. The subjects to be considered in regular alternation.

By request of the Philadelphia County Medical Society, Dr. H. LEFFMANN offered the following Amendment to the By-laws:—

No paper shall be read before this Society unless the same shall have been previously read, either in full or in abstract, before a county society, and by it referred to the State Society.

Objections being offered, this necessarily laid over till next session.

On behalf of the West Philadelphia Medical Society, Dr. J. H. MUSSER offered the following:—

WHEREAS, The dignity, the honor, and the power for doing good, of the medical profession, can only be maintained by the individual members conducting themselves in relation to one another and to the public with the dignity and the honor of gentlemen; and,

WHEREAS, The noble and beautiful Code of Ethics of the American Medical Association is expressive of such virtuous and honorable sentiment,

Resolved, 1st. That we, members of the West Philadelphia Medical Society, look with regret and abhorrence upon the attempts of certain mercenary men to destroy those principles which, for forty-five years, have been cherished and protected by the noblest and most honorable men of the profession.

2d. That we solemnly reiterate our faithfulness and allegiance to the principles maintained in the Code of Ethics which we are pledged to abide by.

3d. That we will not encourage such a travesty upon honor by consulting with physicians who stoop to alliance with quackery, or by directing students to those medical colleges which abide by such false principles.

4th. That a copy of this earnest expression be transmitted to the County, State, and American Medical Society, to which we hold allegiance, and to the *Philadelphia Medical Times* and *News*.

Passed unanimously.

S. S. STRYKER, *President*.
JAS. HENDRIC LLOYD, *Secretary*.

On motion, the communication was ordered to be spread upon the minutes.

Dr. C. C. WEBER, on behalf of the Montgomery County Medical Society, presented and read resolutions of respect and the address of Dr. HIRAM CORSON on the death of Dr. DAVID SCHRACK, a member of the Committee of Arrangements, who died just before the assembling of the annual session.

On motion of Dr. W. B. ULRICH, the address was accepted and ordered to be published, and the resolutions were adopted by a rising vote.

At a special meeting of the Montgomery County Medical Society, called to take action relative to the death of David Schrack, M.D., the following resolutions of respect were adopted by the Society:—

WHEREAS, The members of the Montgomery County Medical Society having received with profound regret the announcement of the death of DAVID SCHRACK, and being desirous of expressing their appreciation of his virtues and their sense of the loss which has fallen upon the community at large, have—

Resolved, That in the death of Dr. DAVID SCHRACK the profession has lost one of its most useful and active members, and one who justly enjoyed the confidence of every member of the Society.

Resolved, Whilst deeply deploring the early death of one whom nature had endowed with such a lavish hand, we rejoice in the rememberance of the gentleness and purity of his character, and that so much as was done in the brief span of his life was done well, and that the life which has closed has no stain upon it.

Resolved, That we tender to the family of our deceased friend the assurance of our profound sympathy.

Resolved, That a copy of these resolutions be sent to the family of the deceased, and be published in the daily papers of Norristown, and entered upon the minutes of the Society.

Also the following address was read by Dr. HIRAM CORSON:—

We have met here to-day under a feeling of deep sorrow. It is not yet two weeks since we parted with our friend and fellow-member of the Montgomery County Medical Society, Dr. DAVID SCHRACK, then in the fulness of health and exuberance of spirits, and to-day he lies at his home "In the deep stillness of that dreamless state that knows no waking joys again."

It was not possible for any one to have intercourse with Dr. SCHRACK without being cheered and happier from contact with a nature so kind, so genial, so free from jealousy, envy, and all uncharitableness. We have all known him long and intimately, and I feel I speak the sentiments of you all when I say that no one of us has ever heard him speak unkindly of any human being. He was alike to all, to the poor as to the rich. How often has his kind, gentle nature elicited our admiration, and created within us a desire to follow his example of kindness to all with whom he had intercourse?

It was his genial nature that made him the choice of us all as Chairman of the Executive Committee for entertaining the Medical Society of the State of Pennsylvania at its meeting in May; deeply shall we regret his loss on that occasion. Without cant, without hypocrisy, but with high conscientiousness and an abiding sense of justice and honor, he was in truth a Christian gentleman.

Of his intercourse with his patients, of his devotedness to them in their days of peril, of his joy at their deliverance from danger, and of their love and gratitude to him they will doubtless speak. We declare only what we know: that he was a well-informed and faithful physician, and an agreeable friend whose society we have ofttimes enjoyed, and with whom social intercourse was a pleasure.

The Society adopted the address of Dr. CORSON, and ordered that a copy of the same be sent to the family of the deceased, published in the daily papers of Norristown, and entered upon the minutes of the Society.

Dr. E. T. BRUEN then discussed the papers of Drs. WALKER and ESKRIDGE.

Dr. E. A. WOOD that of Dr. WALKER, and Drs. ESKRIDGE and WALKER each of the other papers.

The Society then adjourned to meet at the Insane Asylum at 2 P.M.

CHAPEL OF INSANE ASYLUM.

The Society assembled at 2 P.M.

Mr. Addison May, of West Chester, on behalf of the Trustees, welcomed the Society to the Institution.

On motion of Dr. ATKINSON, Prof. Wm. Thompson, M.D., of Philadelphia, was invited to participate in the proceedings.

The following appointments by the President were announced:—

Committees Required by the Resolution of Dr. Curwen on Collecting Statistics.

On Insanity and Lunacy—JOHN CURWEN, ISAAC N. KERLIN, S. S. SCHULTZ.

Medicine—JAS. TYSON, C. K. MILLS, R. H. CHASE.

Surgery—R. J. LEVIS, S. M. ROSS, JAS. MCCANN.

Diseases of Women and Children—Albert H. Smith, Wm. Goodell, C. A. Rahter.

Ophthalmology, Otology, or Laryngology—Chas. S. Turnbull, P. D. Keyser, J. A. Lippincott.

Nervous Diseases—S. Weir Mitchell, J. L. Stewart, Jas. L. Zeigler.

Dr. B. Lee, of Philadelphia, presented the Report of the Committee on Codifying Lunacy Laws; and, on his motion, the report was received, the Committee discharged, and the following resolution was adopted:—

The Committee appointed at the last meeting of this Society "to memorialize the Legislature with reference to amending and codifying the lunacy laws now on our statute books" beg leave respectfully to report: That, soon after their appointment, the Governor of the State anticipated their proposed action by establishing a commission for the very purpose contemplated in the resolution. They therefore considered that further procedure on their part was unnecessary, and respectfully ask to be discharged.

Signed, BENJ. LEE,
Chairman.

The report was received, and the Committee were discharged.

On motion of Dr. B. Lee, it was

Resolved, That this Society, after listening to the numerous able papers upon the proper care of the insane, which have been offered during the present session, in which this important question has been discussed from every possible standpoint, with the utmost freedom of expression and in a truly scientific spirit, consider the following conclusion justifiable.

1st. That the problems connected with this subject are of so intricate and delicate a nature, interesting themselves on the one side with the most sacred social and domestic interests of life, and on the other calling for excessive ability of the highest order and scientific attainments of no mean value, that only those who have made them the subject of careful and conscientious study are competent to attempt their solution or to criticize those who are endeavoring practically to work them out.

2d. That the attempt to create the imputation that the incarceration of sane persons in institutions for the insane from improper motives is one of the dangers of the day, is an unworthy aspersion upon our profession and should be frowned down by all reasonable persons, whether lay or professional, as utterly repudiated by evidence.

3d. That in the medical superintendents of our insane hospitals, and their assistant physicians of both sexes, we recognize a body of workers second to none in our profession in unselfish devotion to the interests of humanity, in elevation of motive and high standard of personal character and general attainment.

4th. That it is evident that in order to place such institutions throughout our country in a position to properly fulfil their functions as hospitals for the treatment and care of diseases of the brain, our State Legislatures must be made to feel the necessity for making such appropriations as shall greatly increase their medical staffs and furnish them with all the necessary appliances for the investigation of disease.

Dr. ULRICH, of Delaware Co., offered the following resolutions, which were adopted:—

Resolved, That the members of the Medical Society of Pennsylvania desire to express their approbation of the kind hospitality and reception extended to them by the managers and medical staff of the Norristown Hospital for the Insane.

Resolved, That the appointments of the institution, the admirable order prevailing, and the absolute attention to cleanliness apparent in every department, have impressed us most favorably.

Resolved, That in provision for pathological and laboratory work, we see a promise of future satisfactory work which cannot but throw light upon the difficult subjects of cerebral disease.

The following papers were read and referred to the Committee of Publication:—

"The Possibility of Abnormal Ocular Condition through the Sympathetic System impairing the Functions of the Uterus," by Dr. WILLIAM S. LITTLE, of Philadelphia.

"Hygienic Management of Consumption," by Dr. J. M. ANDERS, of Philadelphia.

The President announced the following appointments for 1884:—

Address in Medicine, Dr. W. H. DALY, of Allegheny Co.

Address in Surgery, Dr. JNO. B. ROBERTS, of Philadelphia.

Address in Obstetrics, Dr. JACOB PRICE, of Chester Co.

Address in Hygiene and State Medicine, Dr. JNO. G. LEE, of Philadelphia.

Address in Mental Disorders, Dr. ALICE BENNETT, of Montgomery Co.

Address in Ophthalmology and its Relations to General Medicine, Dr. WM. S. LITTLE, of Philadelphia.

On motion of Dr. EDW. JACKSON the following was adopted:—

Resolved, That this Society tenders its hearty thanks to the Montgomery County Medical Society and its Executive Committee; to Dr. MARY H. STINSON; to Dr. and Mrs. J. K WEAVER; to Mr. and Mrs. S. D. ROGERS; to the Faculty of the Philadelphia Polyclinic and College for Graduates in Medicine; and the Philadelphia Hospital for Skin Diseases for the many courtesies and entertainments which have made its present meeting so memorably pleasant.

Dr. GALLAHER, having called upon Dr. E. A. WOOD to speak on this subject, he responded in a happy manner.

Dr. W. VARIAN then left the chair with thanks to the Society for their courtesies, and appointed Drs. PURSELL and GALLAHER to escort the President elect to the platform.

Dr. HENRY H. SMITH, President elect, then took the chair, and thanked the Society for the honor done him.

On motion of Dr. GALLAHER, thanks were tendered to Dr. W. VARIAN, retiring President, for the able manner in which he had performed his duties during the session.

On motion, the Society adjourned until May, 1884.

WM. B. ATKINSON,
Permanent Secretary.

CENSORS.

1*st District.*

(Philadelphia, Delaware, and Chester Counties.)

A. FRICKÉ,	Philadelphia County.
ISAAC N. KERLIN,	Delaware "
JAMES FULTON,	Chester "

2*d District.*

(Bucks, Northampton, Lehigh, Carbon, Monroe, and Pike Counties.)

J. B. WALTER,	Bucks County.
TRAILL GREEN,	Northampton County.
WM. B. ERDMAN,	Lehigh County.
R. LEONARD,	Carbon "

3*d District.*

(Montgomery, Berks, and Schuylkill Counties.)

HIRAM CORSON,	Montgomery County.
W. MURRAY WEIDMAN,	Berks "
D. W. BLAND,	Schuylkill "

4*th District.*

(Lancaster, Lebanon, Dauphin, Perry, and Snyder Counties.)

J. MONTGOMERY DEAVER,	Lancaster County.
H. O. WHITMAN,	Dauphin "
H. O. ORRIS,	Perry "
R. ROTHROCK,	Snyder "

5th District.

(Cumberland, York, Adams, Franklin, and Fulton Counties.)

S. B. KIEFFER,	Cumberland County.
J. W. C. O'NEAL,	Adams "
JOHN W. KERR,	York "
SAMUEL G. LANE,	Franklin "

6th District.

(Juniata, Mifflin, Huntingdon, Blair, Cambria, Bedford, and Somerset Counties.)

A. H. SHEAFFER,	Mifflin County.
A. B. BRUMBAUGH,	Huntingdon County.
JOHN FAY,	Blair "
D. S. GRIFFITHS,	Bedford "
JOHN LOWMAN,	Cambria "

7th District.

(Fayette, Westmoreland, Indiana, and Armstrong Counties.)

W. S. DUNCAN,	Fayette County.
D. W. MCCONAUGHY,	Westmoreland County.
WM. ANDERSON,	Indiana "
M. H. ALTER,	Armstrong "

8th District.

(Allegheny, Washington, and Greene Counties.)

W. S. FOSTER,	Allegheny County.
S. L. BLACHLEY,	Washington "
JAMES MCCANN,	Allegheny "

9th District.

(Butler, Beaver, Lawrence, Mercer, Venango, and Clarion Counties.)

SAMUEL GRAHAM,	Butler County.
D. S. MARQUIS,	Beaver "
E. GRISWOLD,	Mercer "
W. S. WELCH,	Venango "
JAMES ROSS,	Clarion "

10th District.

(Erie, Crawford, Warren, Jefferson, Forest, Elk, McKean, Potter, and Cameron Counties.)

A. S. BONSTEEL,	Erie County.
O. S. WRIGHT,	McKean County.
DAVID BEST,	Crawford "
R. B. BROWN,	Jefferson "
H. L. BARTHOLOMEW,	Warren "
E. O. BARDWELL,	Cameron "
ELLIS M. FARRELLY,	Crawford "

11*th District.*

(Clearfield, Centre, Clinton, Tioga, Lycoming, Northumberland, and Union Counties.)

A. Hibler,	Centre County.
C. K. Thompson,	Tioga "
B. H. Detweiler,	Lycoming "
W. J. Smathers,	Clearfield "
Frank Van Valzah,	Centre "

12*th District.*

(Montour, Columbia, Luzerne, and Sullivan Counties)

James D. Strawbridge,	Montour County.
E. R. Mayer,	Luzerne "
W. M. Reber,	Columbia "
Isaac Pursell,	Montour "

13*th District.*

(Bradford, Wyoming, Susquehanna, and Wayne Counties.)

D. N. Newton,	Bradford County.
L. A. Smith,	Susquehanna County.
H. C. Scott,	Bradford "

MEDICAL SOCIETY

OF THE

STATE OF PENNSYLVANIA.

THIRTY-FOURTH ANNUAL SESSION.

NORRISTOWN,

May 9th, 10th, and 11th, 1883.

The attention of Members and Delegates is called to the following Rules of Order—

RULE I.—*Order of Business.* The order of business laid down by the Committee of Arrangements shall, when adopted, be rigidly adhered to unless suspended according to Rule IX. Any person not ready to respond when his name is called shall forfeit his position in favor of the next on the list.

RULE II.—*Length of time of Addresses, etc.* The stated Annual Addresses shall not exceed in their delivery thirty minutes, and voluntary Communications, Reports, etc., shall not exceed twenty minutes.

RULE III.—*Unfinished Business.* Matters unavoidably postponed, forfeited privileges, discussion of papers, etc., shall come under unfinished business.

RULE IV.—*New Business.* All matters not upon the programme must come under new business.

RULE V.—*Exchange of Position on Programme.* Members may exchange position upon the programme, the exchange to be announced at the reading of the first substitute paper, report, etc., the Secretary being notified in writing, and the same noted upon the programme of the President.

RULE VI.—*Regulating Discussion.* No person shall be allowed to speak a second time during a discussion until all desiring to speak shall have had an opportunity. No speaker shall be entitled to more than ten minutes, except the reader of the paper, report, etc., who shall be entitled to fifteen minutes in closing the discussion.

RULE VII.—*Public Notice of State Society.* Notice of the meeting of the State Medical Society, together with the programme, shall be made at least one month previous to the annual meeting; such notice to be published in the medical journals designated by the Committee of Publication.

RULE VIII.—*To be especially Observed by the Committee of Arrangements.* The terms *unfinished business* and *new business* shall form the last items of the programme for each morning and afternoon session.

RULE IX.—*Suspension of Rules.* The above rules shall not be suspended except for a definite purpose, a definite time, and by unanimous consent of the members present.

PROGRAMME.

Wednesday, May 9th, 9 A.M.

Society called to order by the President....Dr. William Varian, Titusville.
Prayer.....Rev. Joseph McCaskey.
Reading the list of Delegates.....Dr. William B. Atkinson, Secretary.
Address of Welcome.....Dr. Hiram Corson.
Report of Committee of Arrangements.
Introduction of Delegates from other Societies, and of Visitors not Delegates.
Report of Delegates to the American Medical Association.
" " " Medical and Chirurgical Faculty of Maryland.
" " " Ohio State Medical Society.
" " " New Jersey State Medical Society.
" " " West Virginia State Medical Society.
" " " Delaware State Medical Society.
" " " Massachusetts State Medical Society.
" Corresponding Secretary, Dr. J. G. Lee.
" Correspondents of the Library of the Penna. State Medical Society.
" the Treasurer, Dr. Benjamin Lee.
" the Committee of Publication, Dr. Wm. B. Atkinson.
" " on Schedule of Subjects for preliminary Medical Examinations, Dr. O. H. Allis.
" the Medical Examiners of County Medical Societies, giving the number of students examined.
" County Medical Societies (alphabetically).
Calling upon Delegations for Members of Nominating Committee.
Amendment to Rules of Order, Dr. Mills.

Resolved, That Rule IX. of the Rules of Order be amended so as to allow a suspension of the rules by a two-thirds vote of the members present.

Unfinished Business.
New Business.

ADJOURNMENT.

Wednesday, 2 o'clock P.M.

[2.30] Address in Medicine.....Dr. James Tyson, Philadelphia.

Reading of Voluntary Papers in the following order:

Obstetrical Notes.....Dr. R. L. Sibbett, Carlisle.
Artificial Alimentation.....Dr. Hugh Hamilton, Harrisburg.
Insane Asylums in some of their relations to the Community,
Dr. R. H. Chase, Norristown.
Simple Methods of Treatment of Club Foot,
Dr. De F. Willard, Philadelphia.
The Wearing Out of Vaccine Protection and the Efficacy of Re-Vaccination,
Dr. Wm. M. Welch, Philadelphia.

Unfinished Business.
New Business.

ADJOURNMENT.

Session in the Court House, 7.30 o'clock P.M.

Annual Address by the President.....Dr. Wm. Varian, Titusville.

ADJOURNMENT.

Banquet at Music Hall, 8.30 o'clock P. M. Given by the Montgomery County Medical Society to the members of the Medical Society of the State of Pennsylvania.

Thursday, May 10th, 9 A. M.

Prayer.....Rev. H. M. Kieffer.
Announcement of Nominating Committee.
[9.30] Address in Surgery.....Dr. A. Craig, Columbia.

Reading of Voluntary Papers in the following order:

Some Remarks on Scarlet Fever.....Dr. E. O. Bardwell, Emporium.
An Unavoidable Malformation that sometimes accompanies Outward Dislocations of the Foot.....Dr. E. A. Wood, Pittsburgh.
A Contribution to the Clinical Study of Typhlitis and Perityphlitis, Dr. Wm. Pepper, Philadelphia.
[11.00] The thorough removal of Carcinoma of the Breast, illustrated by living specimens.....Dr. S. W. Gross, Philadelphia.
Treatment of Purulent Pleural Effusions....Dr. J. C. Wilson, Philadelphia.
The Medical Service of Insane Hospitals, Dr. Chas. K. Mills, Philadelphia.
Unfinished Business.
New Business.

ADJOURNMENT.

Thursday, 2 o'clock P. M.

Report of Nominating Committee
[2.30] Address in Obstetrics.....Dr. G. O. Moody, Titusville.
Address in Hygiene.....Dr. Henry Leffmann, Philadelphia.

Reading of Voluntary Papers in the following order:

Our Asylums and our Insane.....Dr. Samuel Ayers, Pittsburgh.
Surgical Expedients in Emergencies.....Dr. R. J. Levis, Philadelphia.
Ophthalmological Observations during Ten Years' Service in Wills Eye Hospital.....Dr. P. D. Keyser, Philadelphia.
Remarks on the Cure of Rodent Ulcers, with Presentation of Cases. Dr. Joseph Hearn, Philadelphia.
The Hair, its Use and its Care.....Dr. J. V. Shoemaker, Philadelphia.
Unfinished Business.
New Business.

ADJOURNMENT.

Receptions by members of the Montgomery County Medical Society at their homes, from 8 to 11 P. M.

Friday, May 11th, convene at 8.30 o'clock A. M.

Prayer.....Rev. A. J. Weddell.
[9.00] Address in Mental Disorders.....Dr. John Curwen, Warren.

Reading of Voluntary Papers in the following order:

Diagnosis, Prognosis, and Treatment of Mitral Constriction, Dr. J. T. Eskridge, Philadelphia.
Lithæmia.....Dr. James B. Walker, Philadelphia.
Clinical Notes on the Use of Convallaria Majalis, Dr. Edward T. Bruen, Philadelphia.
Unfinished Business.
New Business.
Adjourn at 11 A. M. to visit the State Hospital for the Insane.

Friday, 2 o'clock, convene in Chapel of Hospital.

Report of Committee on Codifying Lunacy Laws, Dr. B. Lee, Philadelphia.
Stretching Optic Nerve.....Dr. M. Landesberg, Philadelphia.
The Possibility of Abnormal Ocular Condition through the Sympathetic System impairing the Functions of the Uterus, Dr. William S. Little, Philadelphia.
Hygienic Management of Consumption.....Dr. J. M. Anders, Philadelphia.
Appointment of Committees, etc.
Unfinished Business.
New Business.

ADJOURNMENT.

OFFICERS FOR THE YEAR 1883.

PRESIDENT.

WILLIAM VARIAN, Titusville.

VICE-PRESIDENTS.

1st. ADDINELL HEWSON, Phila. 3d. A. THAYER, Erie.
2d. E. P. ALLEN, Athens. 4th. A. M. MILLER, Bird-in-Hand.

PERMANENT SECRETARY.

WM. B. ATKINSON, Philadelphia.

ASSISTANT SECRETARY.

EDWARD J. JACKSON, West Chester.

CORRESPONDING SECRETARY.

JOHN G. LEE, Philadelphia.

TREASURER.

BENJAMIN LEE, Philadelphia.

COMMITTEE OF PUBLICATION.

WM. B. ATKINSON, Philadelphia. JOHN G. LEE, Philadelphia
BENJ. LEE, " ALBERT FRICKE, "
JOHN V. SHOEMAKER, " CHAS. S. TURNBULL, "
EDW. J. JACKSON, West Chester.

JUDICIAL COUNCIL FOR THREE YEARS.

J. L. STEWART, Erie, S. S. SCHULTZ, Danville.
HENRY H. SMITH, Philadelphia.

COMMITTEE OF ARRANGEMENTS.

HIRAM CORSON, *Chairman.* J. O. KNIPE.
J. K. REID. J. K. WEAVER.
MARY STINSON. *DAVID SCHRACK.
E. M. CORSON. H. H. WHITCOMB, *Secretary.*

* Deceased.

ADDRESS

OF

WILLIAM VARIAN, M.D., PRESIDENT.

Gentlemen:

Thirty-five years ago there met in the city of Lancaster a small and earnest body of medical men, who organized "The Medical Society of the State of Pennsylvania," and announced as their object "the advancement of medical knowledge, the elevation of professional character, the protection of the professional interests of its members, the extension of the bounds of medical science, and the promotion of all measures adapted to the relief of suffering, the improvement of the health, and the protection of the lives of the community."

More than a generation of human beings have accomplished their earthly pilgrimage since that meeting was held. Yet still it is our privilege to see in the audience here assembled more than one of the original founders of this Society, who in the year 1848 were present at its organization.

These men have worked for full thirty-five years to advance the noble object of their incorporation. They have encountered much discouragement in their enterprise, and have overcome many obstacles in the opposition incurred from the misapprehension of motives, or the conflicting of selfish interests which have arisen from without, as well as in the friction necessarily developed within the Society itself. God grant, that for many years to come, the few who still survive that small body of pioneers, may be privileged to meet with the hundreds who now throng to the annual meeting of this Society; and while watching with pride the result of their work, be annually greeted by us with loving reverence, as we profit by their counsel and ripened experience.

And what do these, our fathers, see as the result of the generation's work to which they have devoted themselves?

Instead of the half dozen counties in which societies were organized at the time of their first assembly, they now behold an active living county society in almost every one of the sixty-six counties of the State. In lieu of the few members who could then easily be counted by tens, and but few of *them*, nearly eighteen hundred physicians are now enrolled upon the list of members; and the meetings are thronged by hundreds of the best men and women in the State; who yearly assemble to read and discuss papers on every branch of medical science and state medicine. Here they come to sift each other's brains, and garner for themselves the medical wheat which has been grown in every corner of this great Commonwealth. Here, too, they grind and bolt this grain, which, made into bread, furnishes food to every medical mind of the eighteen hundred members of this truly great "Medical Society of the State of Pennsylvania." Our fathers see this Society always keeping in prominent view the last clause of that great object with which it was founded, and yearly becoming a greater power in influencing legislation for the establishing of hospitals for the insane, the feeble-minded, the sick, and the afflicted; never ceasing their efforts to obtain wise and efficient legislation in behalf of State hygiene; educating themselves, and those about them, in the true method of preventing disease; how best to build, to drain, to ventilate, and to heat their public buildings and their dwellings; how to properly clothe and feed their children and themselves; how to avoid the dangers of contagious diseases, and to strangle or stamp them out when they arise. All this, and much more, do these our fathers behold as the results of their small beginning, and can now grasp each other's hands in hearty congratulation on seeing their work pushed forward by clear brains, strong hands, and willing hearts; and feeling that it will never cease so long as human weakness and human blindness continue to outrage nature's laws, and thus make medical science necessary to their physical salvation.

Fellow-laborers in the science of healing! we have still a great burden of work to accomplish.

Charlatanry, superstition, and ignorance still roam almost unchecked throughout our State, and are ravening upon the spoils to be gathered from those whose bodily afflictions render them credulous of the vaunting assertions of empiricism. And as yet there is no, or at least no sufficient, legal protection for our wards.

People of all sorts and conditions of life, in town and in country, daily sin against the laws of health, originating and disseminating the seeds of disease which endanger themselves, their neighbors, and even the entire community in which they live; and as yet there

is no State board of hygiene which would render it possible to invite them to the marriage feast of health and pure living, and compel them to come in. We need, and we must have, a State Board of Health, strengthened and supported by local boards in every city, town, and borough; that we may be enabled to carry out our object to promote the well-being of our fellow-citizens. The great aim and object of our being as physicians is to prevent disease. Our duties as healers of the sick are but secondary. In order that this aim can be accomplished, we need a body endowed with legal powers to enforce sanitary laws in all public and private enterprises. In the construction of our school buildings, our churches, and our hotels; in the regulation of public funerals; in the drainage and water supply of our towns; in the arrest of the spread of contagious diseases; in the supervision of vaccine farms; in every particular in which the public health requires protection, these sanitary laws should be enforced, and this State board of hygiene should be empowered to enforce them. Let us then continue to wage the conflict with ignorance, selfishness, and indolence. No matter how frequently repulsed, let us never be disheartened. Every time we are thrown to the earth let us rise with renewed vigor, and return to the conflict; until we have succeeded in our object, and have at our command the means to prevent the preventable diseases to which man is subject, within the limits to which human knowledge permits us to go.

Among the hygienic problems of the future whose claims we can now see looming upon the horizon, and whose demands for solution become more imperative as time passes away, none is of more importance than the disposition of the dead. The steady increase in the prevalence of zymotic diseases, and their wide-spread and almost universal diffusion wherever civilized man inhabits the earth, is a subject of grave thought and serious alarm. However much scientists may differ as to the entity of the germ or the malaria which constitutes the primary poison of diphtheria, scarlatina, typhoid fever, and other systemic diseases, they are all agreed in looking for the sources of this poison in the water that we drink and the air that we breathe, contaminated, as they are, by the gaseous, fluid, or solid results of the decomposition of animal and vegetable débris. Whether these destructive influences are the product of telluric operations of a mysterious character, or of subtle changes in the chemical laboratory of nature which we are not yet able to explain; or to the germination of microscopic beings, whether animal or vegetable, which find their nidus and habitats in the hotbed of decomposing matter, and when transplanted to vital tissues

exercise a destructive influence; we will not now stop to inquire. But it is not too soon for us to begin to consider whether self-protection does not demand of us, that we should abstain, so far as lies in our power, from adding to the constantly accumulating mass of animal débris which is steadily supplying nature's magazine with an increasing amount of material for the manufacture of these lethal influences. Is it not time that a sentiment hitherto fostered by a long-continued but a dangerous custom, should yield to practical scientific common sense; and that we should take measures to prevent future generations from being obliged to inhale or to swallow the exuvia of the charnel-house or the grave, and so lessen for them the evils to which we are exposed? It ought to be very easy for us to solve this problem, since the solution is given in the single word *cremation*. Let all refuse animal matter, whether human remains or those of the lower animals, be promptly condemned to the ordeal of fire, and we will be doing a great deal to lessen the dangers and ills of the human race. Let the crematory take the place of the cemetery, and we will in some degree protect our children's children from being obliged to suffer the loathsome and deadly diseases which in this age afflict ourselves. Nor, on due consideration, ought this suggestion to shock the sentiment of the most refined and delicate mind. Think! To what does sepulture condemn these mortal shells we call our bodies? To a slow and gradual resolution into their elements of gases and earthy matter. And while this process of resolution is going on, requiring, as in many instances it does, years of time, the foul decomposing mass is but a putrid abomination to all humanity; a festal hall for the most loathsome forms of created beings; a source of horror and disgust to the minds and thoughts of loving friends and relatives. But expose this same semblance of mortality to the purifying chemistry of the crematory, and in a few short minutes you have accomplished the work which has required months by the slow process of nature. The same resolution of animal matter into its elements has taken place: but not in the same protracted manner, and unaccompanied by the same disgusting surroundings, and without danger of producing the same destructive and lethal results. "Dust thou art, and unto dust shalt thou return," would then be made a rapid and literal fulfilment, instead, as now, a partial carrying out of the Divine decree. Our cemeteries would then be lovely and healthful pleasure-grounds, where the contemplation of the last resting-places of our beloved dead would be indulged in without danger, and free from the shuddering consciousness of the horrors of decay adding its harrowing and loathsome reminders to our grief. Public funerals

would cease to be the media of the spread of contagious disease. And when the cinerary takes the place of the coffin, the most sensitive and affectionate of human beings can calmly contemplate the last resting-place of mortality without danger and without disgust. Let it be our mission to educate the opinions of both ourselves and the public towards this disposition of all animal remains as a measure both of public hygiene and of æsthetic fitness.

Within the domain of State Medicine, and belonging specially to the department of those who make a study of mental and nervous diseases, there still remains a form of disease which has too long received insufficient attention, and whose claims I wish to urge upon you in a few brief remarks.

As a question of political economy, and because of its effects upon the social fabric of society, none of the problems of civilization have aroused greater interest, have demanded more thoughtful consideration, have excited the passions and fanaticism, as well as the earnest prayerful enthusiasm of mankind, to a greater degree than the abuse of alcohol in all its kaleidoscopic forms. How to use it, and how not to abuse it, are questions in the answering of which, as individuals and as citizens, we must necessarily take a more or less degree of interest, in proportion to the sense of duty towards our fellow-man which actuates us, or the keenness of perception of its importance to the State, the community, and the family, with which we are gifted. But it is not my intention to dilate upon this aspect of the question, as this is not the time or the place for its consideration, or for a dissertation upon the civil, social, and personal effects of alcohol. Neither, if it were, would I have the inclination to write, or you the patience to listen to, any such discourse. But there is a problem connected with the subject which has a purely medical aspect, and which belongs to us as a professed body of healers of the sick, to endeavor to solve. By its solution we will do not a little to lessen the difficulties which stand in the way of our legislators and reformers, to reduce the number of criminals and paupers; and tend to reduce the number of inmates in our county houses, jails, and insane asylums.

The question is—What can we do to restore the inebriate to a condition of moral, mental, and physical health? Let us successfully answer this question, and we at once reduce crime from 60 to 80 per cent., largely diminish the expenses of the Commonwealth, add immensely to the wealth of our State, and greatly reduce the death-rate consequent on diseases of the liver, stomach, kidneys, lungs, and brain. And this I look upon as purely a medical question. Upon us medical men rests the responsibility of satisfactorily

answering it. Shall it be said that we are, and always will be, unequal to the task? In view of the stupendous benefits to be obtained, are we just to ourselves and others, if we longer delay in fairly grappling with the difficulties and by care and study overcoming them? Although we have ever been fearless in the pursuits of our art, eager to grapple with the mysteries of pestilence and disease, pursuing our investigations regardless of personal risk, alike through the slums of the city, the purlieus of the camp, and the pestilential holds of the ship, we seem to have relegated this disease to the care of the political economist, the poor-law commissioner, or the civic judge.

We are all familiar with the result of treating the inebriate as a felon; thrusting him into the work-house or jail for a few weeks or months, and then sending him out with enfeebled mind and body to encounter the temptation of his appetite, without having obtained any physical or mental strength to resist its depraved instincts. The frequent repetition of this course soon produces a real criminal, or else ends in a pauper's grave or an insane asylum. We have also seen the effect of expending large sums of money in the maintaining of elegant asylums, which will serve as delightful retreats within whose pleasant and even luxurious retirement the inebriate can recover from the effects of a season's indulgence, and from which he issues after a period of enforced abstinence, with his physical energies recruited, but with moral and mental faculties still enfeebled, only to resume his evil habits after a brief interval of reason. Neither the penitentiary nor the asylum—the one a representative of physical force, the other of moral suasion—has as yet proved effective. Yet, perhaps, it will be to the latter in its proper development that we must turn to accomplish our end. What is the medical problem which we have to encounter? Given: A man diseased in mind and body, with his nervous system debilitated and deranged, and his physical organs changed and disordered; how can we cure him? The investigations and careful studies of Dr. Crothers, of Hartford, would seem to throw light upon the direction in which we should begin our efforts; and I would suggest the careful study of his thoughtful papers on this subject to those who have not already perused them. My own aim is not to elaborate a plan of treatment, but simply to suggest the subject as one worthy of the attention of those able and experienced men who make mental diseases a study, who when their attention is once elicited will doubtless soon demonstrate a practical course of treatment for the accomplishment of so important a purpose. Since our efforts during the past fifty years have resulted in such remarkable benefit to the

insane, the feeble-minded, and other wards of the people, let us study to accomplish as much in the near future for the equally unfortunate and irresponsible victims of alcohol.

Among the boons which the science of medicine has conferred upon the human race, none has proved greater, or has better endured the critical tests of time and experience, than the prophylactic power of vaccination. Yet even here the fashion of the day has made its changes; the experience of years has been overslaughed by the desire for novelty, and the well-proved powers of humanized virus have been buried and almost forgotten under the plausible theories and loud assertions of the advocates of exclusive animal vaccination. During the past ten years humanized virus has been nearly driven out of use, and, in spite of generations of experience, has been almost entirely supplanted by the presumably purer and more potent animal virus. But unless greater care is exercised in the production and preservation of this favorite virus, and intelligent inspection and jurisdiction are exercised over all vaccine farms, the time is not far distant when the advocates of exclusive animal vaccination will see their "vaccinia boon" share the fate of the numerous plausible theories which have had a brief existence, but have failed to endure the crucial test of long-continued and careful trial by the profession. A brief recital of my personal experience with animal vaccination, although doubtless identical with that of most if not all here present, will not be out of place, and will serve to explain my remarks on this subject. Although entirely satisfied with the purity and efficiency of humanized virus as cultivated and carefully selected by myself, I had during the past ten years, at first partially, and then entirely, abandoned its use; yielding my experience and convictions in part to the theoretical purity and efficiency of animal virus, and in part to the fashionable outcry for its employment. The uncertainty of the action of animal virus, and the frequently recurring necessity for its renewal, I found wearisome and discouraging. The brief period which elapsed after a successful vaccination before the subject became susceptible to a revaccination argued a weak prophylactic power, which argument was not weakened by the occasional occurrence of varioloid shortly after a successful vaccination. But I still persevered, for I felt it my duty to give my patients what was considered the purest and best means of prophylaxis that could be obtained. Still I could not but feel that the entire failure of at least thirty per cent. of all my primary vaccinations was discouraging, and the necessity of going over the same ground again and again was, to speak mildly, monotonous. During the winter of 1881–82 smallpox was epidemic,

and its loathsome wave rolled over the entire country. Almost every individual in my section demanded vaccination, and it was necessary to obtain material from every source of supply within my reach. The result in many cases was the production of an unhealthy and poisonous sore, often phagedenic, and always inflammatory, which gave great trouble and frequently took weeks to heal. These cases all suffered from severe systemic disturbance, which in some cases was not without danger to life. When finally healed, the cicatrix in some cases became the seat of an erectile tumor which resisted all measures of destruction, and was finally removed by extirpation with the knife. Had this experience been personal to myself alone, it would have proved disastrous to my practice and reputation; but it was a common experience to all practitioners in my neighborhood; and the universality of the misfortune was our protection from public reprobation. An experience of nearly thirty years' use of humanized virus had shown me that it possessed great protective power against variola, together with certainty of action, and freedom from any such effects as above described. Less than ten years' use of animal virus has led me to believe that it is uncertain in its action, that its protective power is not so lasting, and that at times it is not free from a liability to produce disastrous effects. I have strong doubts whether any protection from variola has been obtained in those cases wherein the inflammatory sore above described was produced; but I have no doubt whatever that it would now be difficult, if not impossible, to induce the sufferers to submit themselves to another vaccination. So far as I have collected the testimony of the medical men in my vicinity, their experience has been similar to my own, and their faith in animal virus has received a rude shock. I repeat then my assertion, as to the necessity of expert inspection and control of the sources of animal vaccinia, as a necessary feature of State medicine, and as a protection against the possibility of diseases scarcely less to be dreaded than smallpox itself.

The subject of medical education has been so often discussed before you, that were I to occupy your time with an elaborate presentation of its necessities, I would, I fear, only weary you by a repetition of remarks with which you are already familiar. The importance of a firm foundation being first laid in the preliminary education of the student is recognized by all; and the best means of effecting this, and the standard which shall be required of all who essay in the future to enter the profession, is a subject of consideration and action by you at this session. I have no doubt that you will arrive at a conclusion both wise and practicable. I simply

allude to the subject with a view to making a single suggestion. It is that the importance of establishing a chair of State Medicine and Hygiene be urged upon all our medical schools; that attendance upon the lectures on this subject be made obligatory; and a satisfactory examination thereon be made one of the requisites of graduation. If we use the influence of this Society for the accomplishment of this advance in medical education, we will do not a little to raise the status of the medical man to a higher grade, as well as to greatly increase his usefulness. If in addition to this we can influence all of our medical schools to insist upon not less than three full years of attendance upon medical lectures before a diploma will be granted, we shall have taken a long step forward on the path of improvement in medical education.

The dilatory appearance of the *Transactions* of the Society in a published form is a subject of great complaint; and it behooves us to see whether some measures cannot be taken to obviate this in the future. Frequently allusion has been made to this subject, and that it is a serious evil is universally acknowledged; but, as yet, no successful steps have been taken to seek out a better or speedier way of bringing the valuable papers yearly read before this Society into the hands of its members. Many a practical suggestion which seems to meet a daily or frequently recurring want in the practice of some individual member can be but imperfectly recorded upon the tablets of memory whilst listening to the rapid reading of a paper, and when required for use the recollection of it has become so blurred and vague as to be of little value. Month after month passes whilst anxiously awaiting the appearance of the *Transactions*, so that he can read and digest at his leisure the numerous valuable papers to which he had listened in such rapid succession that their impressions were blended upon his mind in one panoramic picture, the individual features of which he is unable to fix and retain. But he waits in vain. The impressions received grow dim. The interest excited on special points of importance in his own practice passes away. And when finally he receives a copy of the *Transactions* just as he is arranging his business, and his linen, to again take his seat in the State Society, his interest in it has vanished, and he lays the work upon his table with regret that its usefulness to him has in part gone by. Is there no remedy for all this? Which one of you, gentlemen, would submit to such delay in the publication of a work of this size, were it the creature of your own brain and handiwork? What publisher would dream of protracting the issue of so small a volume beyond a period of sixty or ninety days, were *you* or *I* as individuals its author, and interested

in its publication? Why then should the 1800 members of this Society be obliged to suffer from such delay? But if it is said, and *proved*, that as now published this delay is unavoidable, and arises from sources outside of the printing house, then we should require some better and prompter way of distributing among the members the numerous valuable and practical essays which render our sessions so interesting. One way might possibly be to reduce the number of the Committee of Publication to one active member, and to pay him a suitable compensation for his work, proportioned to the promptness with which it is executed.

Another method would, perhaps, be to learn a lesson from the course about to be undertaken by the American Medical Association. I do not mean that this Society could advantageously establish a journal of its own, nor do I believe any such course necessary. But I think it not impossible that an arrangement could be made with one of the already well-established weekly journals of the State which would prove of advantage both to the Society and to the journal. I am informed that the expense of publishing our *Transactions* in their present form is about $1600. The payment of but little more than half this sum, together with granting the exclusive privilege of publishing the valuable papers which are read before the Society, would probably be a sufficient inducement to the publishers of one of our medical journals to lead them to furnish a copy of their journal either free or at a greatly reduced rate. Increase of circulation and of advertising facilities, together with a liberal supply of the best of material for their journal, would result to the advantage of the journal. The early access in print to papers of personal interest, and a weekly journal at a cheap rate, would redound to the advantage of the members of the Society. Our minutes could then be published by the Society in a small and inexpensive pamphlet, over the production of which the Publishing Committee would be allowed to spend 364 of the 365 days which elapse between our sessions, and never hear a whisper of complaint. Neither of the measures here suggested may in your judgment be suitable; but, if my remarks will have any influence in causing you to evolve a feasible means of removing this source of complaint, they will have fulfilled their end.

The action of the medical society of a neighboring State in throwing down the barriers which have been so long maintained between the science of medicine and legalized dogmatism received from you at your last session an expression of unanimous disapproval. The renewal of this action by the same society, together with their refusal to appoint delegates to the national Association and thus practically seceding from its fellowship, demands that

you should again express your reprobation at their persistence in wrong-doing, in language that cannot be misunderstood. Action which has met with remonstrance, and unqualified disapproval, from every medical society cannot but result in placing that society in a position of antagonism to the opinion of the entire medical world. Let us speak then in no uncertain tones of voice when we express our condemnation of action which arrogates to a subordinate body powers which belong only to the highest associated medical authority in our land; and which renews in a medical form a conflict, which, in its political aspect—within the memory of every person here present—deluged our land with blood and exhausted the treasures of our country. I wish here to record my personal protest against that action as being *unnecessary*, *unjustifiable*, and *revolutionary*.

And now permit me to pause and say a few words to that portion of this audience who do not belong to the profession, but who have been attracted here to-night either by interest in the progress of science, or by curiosity to ascertain the reason for the assembling of so large a number of the best medical men in the State.

If you have listened with patience to the few remarks that I have made, you have learned that, in the main, our object is to consult together and devise the best measures that science and thought can contrive, to protect you from the onslaught of disease, and to relieve you from its effects when you are attacked. In this battle of ours, which must be waged so long as "human flesh is subject to human ill," you cannot stand by as idle spectators calmly awaiting the result. Your own interests and those of your loved ones are too intimately blended with our aims, to make it safe for you to show any indifference, or indecision in acting, when such a vital conflict is in progress. Permit me then briefly to show you how you can aid in promoting the noble aims and object of this Society, and become colaborers with us in this conflict with disease. And first, let me request your aid in the proper education of physicians so that they may be thoroughly fitted for the work that lies before them.

How can you render efficient help in this direction?

I answer, by forbidding and discouraging your sons, brothers, and acquaintances from commencing the study of medicine before they have undergone such careful preliminary education in the classics and the natural sciences as will fit them to understand and fully master the intricacies of the art and science which they expect to make their life-long work. Urge upon them that they become well grounded not only in the elements of a good common school

education, but also in mathematics and the natural sciences; and that they also obtain a familiar knowledge of Latin and Greek, and if possible of the modern languages. All of these studies are but a necessary preparation to the proper study of medicine, and without the preparation of mind by this preliminary education the student is obliged to accept as dicta of his teachers, by faith alone, much that is beyond his comprehension, and which, being the groundwork of all scientific thought and research, should already be familiar to him. Without this he will be forced to go through life handicapped by a lack of education which prevents his mastering his profession, and renders him unworthy of the full trust and confidence of his patients, because ill fitted to do his duty by them. With as much propriety could you send a soldier into the heat of battle without cartridges, as a student to a medical college without the broad intelligence and trained habits of thought only to be obtained by a broad academic, and if possible collegiate, education. In the one case you expose the soldier to almost certain destruction; in the other you expose yourselves to equal danger from the mistakes of a half-educated physician.

With your sons thus properly prepared to enter upon the study of medicine, encourage them to seek for a mastery of that profession which should honor those who enter it and be honored by every one of you who are so dependent upon it. To this end discourage in them all desire for the hasty obtaining of a diploma, as a license to attach to their name the empty title of doctor, and be privileged by the mystical letters M.D. to feel a pulse and look at a tongue, before they know the true interpretation of the varied beat of the one, or have learned to translate the language of the other. The day has gone by when the graduate of a medical school which turns loose upon the world a half-educated licentiate, who has spent a few months in a confused attempt to understand a couple of scanty courses of lectures, can take rank with the alumni of those schools which demand three and more years of the closest application from their students, and encourage them if possible to devote at least two additional years to the study of their profession, ere they launch themselves upon the rough sea of professional life.

Demand as your right the highest possible education for the physician of this day; and enforce your demand by refusing to entrust your health and your persons in the hands of the uneducated, and by sending your student sons and brothers to those schools only which afford every facility to obtain a complete education, and which exact of their graduates a complete mastery of the course prescribed.

Again, you can assist in the great aim and object of our work by using all your influence, whether social or political, in favor of all legislation which has for its aim the arrest of the spread of contagious diseases; the purification of the sources of water-supply; the abatement of nuisances prejudicial to health; the sanitary inspection and control of school-houses and buildings of public accommodation and resort; and the care and cure of those who by misfortune or disease have become incapable of self-protection, and so are wards of the people. By so doing, you will be helping and protecting yorselves as well as us. As individuals, our pecuniary interests conflict with the arrest of the spread of disease. But our moral duties, as physicians, demand that every measure within our reach shall be employed by us which tends to promote the health and well-being of our fellow-men. We ask of you then to insist upon the passage of all well-devised laws which have this end and object in view. Since no political end can be obtained by the passage of such laws, we are constantly opposed and defeated by the legislators of the State, who raise the empty outcry of "a war among the pathies" as an excuse to refuse legislation whose sole object is to promote the welfare of the citizens of this Commonwealth.

If you will arise to a sense of the importance of such legislation to yourselves and your families, and will bring to our aid all the force of your political, social, and personal influence in demanding such legislation, as yours by the divine right of necessity, these laws will be promptly passed; and you will reap your reward in the assured health of your families, and happiness which is health's sure accompaniment.

Again, should there happen to be in this audience any persons who, being largely endowed with this world's wealth, are desirous of being almoners of God's bounty to them, and of promoting the welfare of their fellow-creatures by facilitating and cheapening the means of education to our noble profession, it would be the part of wisdom if they were to use such portion of their wealth in endowing chairs in some medical school which has already achieved a well-established and deserved reputation, thus enlarging its usefulness and lessening the expense of a generous medical education. A few hundred thousands thus bestowed to enlarge the usefulness of such reputable schools of medicine as pertain to the University of Pennsylvania, or to Jefferson College, would be of more wide-spread benefit than ten times the amount devoted to the establishment of a new college, the necessity of which is only apparent to the mind of the founder, while it would prove to be an equally glorious memorial of the benefactor.

It would be easy for me to add many more hints to the few that I have here outlined, attention to which will make you valuable assistants to us in our efforts of general beneficence, and will return to you in an increase of health and the duration of life, and thus restore fourfold to your bosoms.

Fellow-members! In this large gathering of physicians who greet me to-night it gratifies me to recognize so many individual members of each of the two classes of doctors whose labors redound in such honor to our profession.

In the one class are those whose natural bent of mind induces them to pursue the path of minute investigation and research, and, with the assistance of the various instruments of precision, chemical analysis, and the numerous measures of physiological and philosophical investigation, carefully search out the secrets of nature, and endeavor to wrest from them the primary cause of sickness and disease. The glorious results of their labors prove beyond a cavil the falsity of the assertion that medicine is not a science. If this were ever true, it certainly is not true in this our day. A shrewder, more skilful, and more indefatigable body of trained scientists than those who are working in the medical ranks to-day, and so many of whom I see before me to-night, cannot be found in the ranks of any other profession. Full of eager enthusiasm and caretaking determination, they are investigating every branch of their profession, seeking for the primary cause of, and the remedy for, every disease which tends to shorten life.

Although sometimes misled when apparently on the right path, there is no discouragement and no retrograding in the general advance. Each one advancing clears some ground for him who follows, and the aggregate of progress constantly adds to the glory of the profession, as well as to the welfare and comfort of man.

To the other class belong those practitioners of medicine who, starting from the same goal with the first, prefer to devote their lives to the pursuit of the art, instead of the science of their profession. These men are the true healers of the sick, who carefully and industriously study the signs of disease and the methods of its cure. By carefully investigating the physical aspects of disease and studying the effect of the therapeutic means within their reach, they are enabled to store up and record an amount of practical knowledge that at times seems in its insight to be marvellous, and is really that true and only genius which is the result of labor, observation, and thought. These men test and weigh the discoveries of the others, and assign them their practical value in the prevention, the amelioration, or the arrest of disease. Possessed

of bold and fearless yet cautious minds, trained to self-reliance and judgment by many a single-handed conflict with the many-sided phases of disease, they accept no person's dictum as law, but welcome every plausible suggestion or theory, and weigh, study, observe, and experiment with it until they are prepared to accept and adopt it as a well-proved truth, or reject it as unable to endure the crucial test of practical application. These two classes of medical men are necessary corollaries of each other. Each is alike an essential element to the progress of our science and art. And although medical thought, as exemplified in the current literature, will naturally vacillate first in the one direction and then in the other, true progress is only found in the steady advance of each side by side, and shoulder to shoulder. At the present moment the advance of the scientific investigator is perhaps the most rapid. Outside of the surgical branch of our profession which is making such wonderful progress, the microscopist, the chemist, and the physiologist are probably making the most marked impression upon the medical thought of the age. These men are accumulating material with such rapidity that the others can scarcely sift and test it. But the equilibrium will not be long displaced, and meanwhile let it be our aim, each in his own chosen field, to so do his individual part to advance and sustain the noble science of medicine, that those who come after us will look upon our work with gratitude and reverence, as that of men who did their duty to their profession, and who lightened the labors and the cares of their successors.

TREASURER'S REPORT.

The undersigned, Treasurer of the Medical Society of the State of Pennsylvania, begs leave to submit the following annual report:—

The balance on hand May 11, 1882, was one thousand nine hundred and sixty-five dollars and sixty-eight cents ($1965.68). There was received during the year from all sources, two thousand two hundred and sixty-nine dollars and ninety-one cents ($2269.91). During the same period the expenditures amounted to one thousand eight hundred and seventy-one dollars and seventy-five cents ($1871.75), leaving a balance on hand of two thousand three hundred and sixty-three dollars and eighty-four cents ($2363.84).

The annexed statement of receipts and expenditures will show in detail the sources from which the receipts were obtained and the objects to which the expenditures were applied.

All of which is respectfully submitted.

BENJAMIN LEE,
Treasurer Med. Soc. State of Penna.

The following County Medical Societies are in arrears:—

Beaver County Medical Society for dues of 1882 . .	30 00
Tioga County Medical Society for dues of 1881 . .	52 80
Total amount of delinquency	82 80

The following County Societies have forfeited membership in this Society by non-payment of dues within the limit of time prescribed:—

Bedford County Medical Society.
Lehigh County Medical Society.

Norristown, May 10, 1883.

Statement of Receipts and Expenditures.

RECEIPTS.

From balance on hand May 11, 1882		$1965 68
" 3 County Medical Societies for dues of 1881	$36 80	
" 44 County Medical Societies for dues of 1882	2221 50	
" sale of Transactions (1881)	4 95	
" sale of Transactions (1882)	3 00	
" interest on deposit in the Fidelity Trust and Safe Deposit Company	3 66	
		2269 91
		$4235 59

EXPENDITURES.

For expenses of Dr. Traill Green in attending meeting of Committee on Medical Education	$3 70	
" expenses of Committee on Medical Legislation, Dr. R. L. Sibbet, Chairman	55 00	
" expenses of Treasurer in attending meeting at Titusville	25 72	
" salary of Permanent Secretary	300 00	
" expenses of Committee on Schedule for Medical Examiners, Dr. O. H. Allis, Chairman	2 20	
" printing Schedule for Medical Examiners (T. K. Collins)	24 23	
" printing bill-heads, circulars, etc., and postage (T. K. Collins)	43 57	
" printing postal cards for Secretary ("Times Printing House")	4 25	
" engrossing bills for Legislature (State Board of Health)	6 00	
" printing, binding, and distributing Transactions of 1882 ("Times Printing House")	1257 84	
" printing and distributing documents for State Board of Health Bill (T. K. Collins)	33 56	
" printing circulars, stationery, etc., for Secretary and Treasurer (T. K. Collins)	30 96	
" travelling and other expenses of Permanent Secretary to date	78 77	
" office expenses of Treasurer	5 95	
		$1871 75
Balance due the Society, May 10, 1883		$2363 84

We hereby certify that we have examined the foregoing account of Dr. Benjamin Lee, Treasurer, and find it correct, and in accordance with the vouchers.

ISAAC PURSELL,
THOS. LYON,
Auditing Committee.

ADDRESS IN MEDICINE.

By JAMES TYSON, M.D.,

PROFESSOR OF GENERAL PATHOLOGY AND MORBID ANATOMY IN THE UNIVERSITY OF PENNSYLVANIA; ONE OF THE PHYSICIANS TO THE PHILADELPHIA HOSPITAL, ETC.

MALARIAL HÆMATURIA AND HÆMOGLOBINURIA.

Perhaps the most imporant form of hæmaturia and hæmoglobinuria resulting from general causes is that due to malarial poisoning. I prefer the term malarial to intermittent or paroxysmal, not only because it more precisely indicates the cause of the condition, but also, because the condition itself is by no means always intermittent, but sometimes continues without interruption until checked by appropriate treatment, and I have known it to continue uninterruptedly for a year, notwithstanding all treatment.

The first complete report of an undoubted instance of this affection appears to have been published by Dressler, in 1854,[1] although incomplete and uncertain cases were reported prior to this date—one as early as 1832,[2] by Elliotson. Dr. George Harley[3] early contributed to our accurate knowledge of the subject in 1865, and since then numerous papers and reports of cases have appeared in English and American journals—the southern part of the United States being a fertile scene of the affection, while it is by no means rare in our own State.

Two degrees of the disease are met with, a milder form in which other symptoms as well as the hæmaturia are less pronounced, and of which instances occur in the Middle States as well as the south and west of this country. Of this kind seem to be the cases

[1] Dressler, Ein Fall von intermittirender Albuminurie und Chromaturie, Virchow's Archiv, Bd. 6, S. 264, 1854.

[2] Elliotson, Clinical Lecture on Diseases of the Heart, with ague (and hæmaturia), London Lancet, 1832, p. 500.

[3] Harley, George, Intermittent Hæmaturia, Medico-Chirurg. Trans., London, 1865.

studied by Harley and other English physicians. In addition to this, there is a second more malignant form, attended by great prostration, vomiting and yellowness of the skin, along with copious discharges of bloody urine. Instances of the latter are numerous in the Southern States of this country, where they have recently been studied with considerable care; also in the East and West Indies, and in tropical countries generally. In neither degree of the disease is it necessary that the red corpuscles of the blood should be present. They may be represented by their coloring matter alone when the condition is called a hæmoglobinuria or a hæmatinuria.

To ourselves, at this time, the milder, but sometimes quite intractable form, is more interesting. The victims, who, in my experience of seven cases, have invariably been men—and I believe this is the experience of others also—are generally able to recall a history of exposure to malaria, and often of distinct attacks of malarial fever, intermittent and remittent. The hæmaturia appears suddenly, and when paroxysmal, may occur daily, or on alternate days, or a couple of times a week, or even at longer intervals. When the attacks occur at longer intervals, say of ten days or two weeks, if the disease is left alone the interval is apt to gradually diminish, until the passage of bloody urine becomes daily. The urine in the morning may be perfectly clear, and at two o'clock is evidently bloody. It continues so through one or two acts of micturition, and then becomes clear again; or it may be bloody on rising and clear up by noon. Sometimes the bloody urine is preceded or accompanied by a sense of weariness and chilly feeling, or sometimes simply by cold hands and feet, or by cold knees, or by pallor and blueness of the face, or by accelerated pulse, or by no other symptoms whatever. There is sometimes a sense of fulness in the region of the kidney and sacrum.

Dr. Harley states that in one of the two cases which he reported, there was slight jaundice, and in the second a "sallowness which appeared to be due to a disturbance of the hepatic functions," but in none of the cases which I have met was this symptom present. In the more malignant form occurring in the tropics, and Southern States of America, jaundice is a constant symptom.

While a majority of cases of malarial hæmaturia are intermittent, many are continuous, and of my seven cases only two were distinctly intermittent. One of these cases I published in a clinical lecture in the *Philadelphia Medical Times*, as far back as September 1, 1871.

Negroes are not exempt from this milder form of the disease, as they seem to be from the more malignant form of the South. While

writing this paper, I was consulted by a negro, thirty-one years old, who had a true malarial hæmoglobinuria which yielded promptly to the treatment by quinine. But this was the only case out of seven of a negro.

Physical and Chemical Characters of the Urine.—The urine is usually acid in reaction when passed, sometimes neutral, rarely alkaline, and ranges in specific gravity from 1010 to 1028. It is always albuminous, and always tinged by blood-coloring matters, the depth of color varying from the trifling degree known as "smoke-hued" to a dark-red or claret color. Sometimes it is even darker and is often compared to porter, though this degree of coloration is more characteristic of the malignant form. The urine deposits a dark, reddish-brown sediment, which is generally copious, but varies with the degree of coloration of the urine. This sediment is made up chiefly of red blood-disks or the granular débris resulting from their disintegration.

Casts of the uriniferous tubules are also often present. They are usually made up of aggregated red blood-disks or the granular matter referred to; but they may also be hyaline, or hyaline with a moderate amount of granular matter attached. Granular urates, also, at times contribute to the sediment, and also adhere to the casts.

That red blood-disks are at times exceedingly scarce and even totally absent at the very moment when the urine is passed, is a well-recognized fact; while that the coloring matter present is still that of the blood, even though no corpuscles are present, is easy of demonstration by the production of Teichmann's hæmin crystals,[1] or by spectrum analysis.

In the matter of the presence or absence of blood-disks, it is to be remembered that these may be present at the moment the urine is passed, but disappear by subsequent solution if the urine happens to be alkaline or becomes so secondarily. It is an interesting fact, too, that the colorless blood-corpuscles are often present intact, even when the red disks are absent. While I have frequently examined urine sent me from the South, in which only the coloring matter of the blood and no corpuscles were present, but one of the cases coming under my own observations furnished urine of this character.

[1] Place a drop of the sediment upon a glass slide and allow it to dry. Mix it thoroughly with a few particles of common salt, and cover with a thin glass cover, under which allow two or three drops of glacial acetic acid to pass. Carefully warm the slide for a few seconds over a spirit-lamp, and when most of the acetic acid is evaporated, examine by the microscope. Hæmin crystals will be seen to crystallize out as the mixture cools.

Pathology and Morbid Anatomy.—The pathology of malarial hæmaturia consists, as yet, chiefly of theoretical deductions. We can only conclude that the malarial poison acts upon the blood and bloodvessels, impairing the integrity of both. This goes so far occasionally as to produce an actual destruction of blood-disks, and always so alters the capillaries that they permit the transudation of blood-elements which are usually retained.

The morbid anatomy is scarcely more precisely defined. Ponfick[1] goes so far as to say that the exudation of hæmoglobulin is not possible without the concurrence of marked diffuse nephritis. Recently, Lebedeff[2] has sought to investigate the more minute alterations of the kidney in hæmoglobin exudation, but without very definite results. These, however, on the whole, seem to confirm Ponfick's view as to the presence of an inflammatory process.

Diagnosis.—The diagnosis of this condition is not usually difficult. We have first to determine whether the hemorrhagic discharge is from the kidney rather than the bladder or ureters. This is certain if tube-casts are present. But tube-casts are not always present, even when the hemorrhage is from the kidneys. The absence of clots and of vesical irritation, and of pain in the course of the ureters, is characteristic of blood from the kidneys. Finally, all hæmoglobinurias are renal.

It being certain that the blood comes from the kidney, we have to distinguish it from that due to cancer, to calculous irritation, and to cachexias, as purpura and scurvy; or to grave forms of infectious disease, septicæmia, pyæmia, etc.; or, finally, to poisonous substances introduced into the blood, such as arsenic, iodine, arseniuretted hydrogen, carbonic acid and carbonic oxide gas, and even certain species of edible fungi.

In the first place, the diagnosis is greatly aided if it is found we have to do with a hæmoglobinuria rather than a hæmaturia. For although the former condition is produced by toxic and septic agencies of another kind, the attending symptoms, when it is thus produced, are so characteristic that it is not likely that error can be made.

To aid in distinguishing it from cancer, we have the history of malarial exposure, and often that of other forms of malarial disease; and, notwithstanding the seeming drain upon the system, none of

[1] Ponfick, Ueber die Gemeíngefährlichkeit der essbaren Morchel. Virchow's Archiv, Bd. 88, S. 476, 1882.

[2] Lebedeff, Zur Kenntniss der feineren Veränderungen der Nieren bei der Hämoglobinausscheidung. Virchow's Archiv, Bd. 91, S. 267, Feb. 1883.

the cases I have ever seen present the profound anæmia of cancer. The bloody discharge in cancer of the kidney is always a true hæmaturia—there are always blood-disks in the urine. There is often pain in the region of the kidney in cancer, but never in malarial hæmaturia.

In calculous disease there is almost always pain before or during the hæmaturic attack, and characteristic crystalline sediments often appear in the urine; the corpuscular element of the blood is also always present in calculous hæmaturia.

The disease, being comparatively rare in this latitude, is sometimes overlooked on this account. Of the seven cases which I have noted during fifteen years, five originated in Pennsylvania, one in New Jersey, and one in North Carolina.

Treatment.—The treatment is distinctly that of malarial disease, and I have seldom seen more brilliant and satisfactory results than have followed the use of *quinine* in a case accurately determined, although such results are not invariable, and I have known the disease to resist for a long time the most thorough and judicious use of anti-malarial remedies. Usually, however, I take hold of a case of this kind with considerable confidence. When there are distinct remissions, my practice has been to administer sixteen to twenty grains of sulphate of quinia in the usual manner of anticipation of the paroxysm in intermittent fever—from three to five grains every hour until the required amount is taken; the whole amount may be taken in two doses or even in one dose. Where there is no distinct remission, I more usually direct three to five grains every three hours, until the hemorrhage ceases or decided cinchonism is produced.

The advantage well known to accrue in malarial disease from the combination of mercurials with quinine, applies to hemorrhagic malaria as well, although I usually reserve the mercurial until I have ascertained whether the simple quinine treatment answers the purpose. If the usual method fails, I give eight or ten grains of calomel in the evening, followed by a saline in the morning, before reinstituting the quinine treatment. In the case of the colored man alluded to, who had malarial hæmoglobinuria, thirty-six grains of quinine failed to break the attack; but the same quantity given after ten grains of calomel had acted, succeeded.

Where these means failed, I have not found the other methods of treatment commonly resorted to in obstinate malarial disease to be any more efficient. I allude to the treatment by *arsenic*, or by *iron* and arsenic. Indeed, in the only two cases in which, after failure with the quinine treatment, iron and arsenic were used at my sug-

gestion, they failed absolutely. In the one case under the care of my friend, Dr. James L. Tyson, of Penllyn, Pa., this treatment was carried out most faithfully. After four weeks' treatment with quinine without effect, Fowler's solution was given at first in five-drop doses three times daily, subsequently increased to ten, and fifteen, along with twenty and thirty-drop doses of tincture of the chloride of iron, until œdema of the eyelids occurred, when the arsenic was discontinued, but the iron continued. In two or three days the arsenic was recommenced in three and four-drop doses for three or four weeks longer without effect. Fluid extract of ergot in twenty-drop doses was then substituted for the iron, alternating with the arsenic for two weeks longer, when some slight favorable change was apparent, but it was temporary. Repeatedly throughout the treatment the patient complained of weariness and backache, cold feet and knees, headache and acceleration of pulse, and a feeling of "utter wretchedness;" and then again he would feel quite comfortable for a day or two, but with little or no change in the urine, except occasionally in the morning, when it would sometimes be quite light-hued, but after breakfast would again assume its bloody character. A sojourn at the seaside for two weeks was without effect.

It will appear from the above that *ergot*, which has been found useful in some forms of hæmaturia, is of little service here, as is attested by two other cases, in which I tried it faithfully. At the same time, it is a remedy which should be tried in case of failure with others.

The usual *astringents*, mineral and vegetable, of known efficacy in the treatment of hemorrhagic conditions, should be used, alone or in conjunction with the specific anti-malarial treatment, after the latter has been found of itself insufficient. To this class of remedies belong the mineral acids, persulphate of iron, acetate of lead, alum, gallic acid, catechu, kino, etc.

Rest is certainly an important adjuvant in the treatment of this form of malarial disease. I have known a recurrence to take place after a long drive in a carriage.

It is claimed for many *natural mineral waters* that hemorrhage from the kidneys is one of the affections cured by their use. *Chalybeate* and *alum* springs might be expected to be of advantage by the local action of these astringents in their transit through the kidneys, but my personal knowledge is limited to a single case. The results in this seemed, however, of such a decided character, that I report them, without desiring to attach to a single case an importance greater than it deserves. The patient was a lawyer, who consulted me in June, 1881, at the suggestion of Dr. W. W. Covington, of North

Carolina. He had frequently had "chills," and a congestive chill in 1873. Three months before I saw him, he began to pass bloody urine. He had no other symptoms, except a soreness and weakness in the neighborhood of the sacrum, extending into the outer part of the left thigh. The urine passed for me at the time of his visit was dark reddish-brown in color, acid in reaction, had a specific gravity of 1028, highly albuminous, and deposited a sediment of almost tarry consistence, which was made up almost entirely of blood-corpuscles. There were no tube-casts. He had been a dyspeptic since seventeen years of age, and medicines disagreed with him; but he was treated faithfully with quinine, iron, arsenic, ergot, benzoate of lime, all without the slightest effect. At the end of about a year from the time he consulted me, he heard of the Jackson spring, located in Moore County, North Carolina, fifteen miles distant from Manly Station, on the Raleigh and Augusta Railroad. He went there, and remained one week. He states that, for the first two or three days, the water acted decidedly on his kidneys, and he voided a number of clots of blood. *On the third day all traces of blood disappeared*, and it recurred but once since, on a very cold day, in November last, but again disappeared after a day or two in the house. This statement is so direct, and my patient is so intelligent and reliable, that I could not but be impressed by it, and I am quite anxious to repeat the remedy on another case. Unfortunately, no precise analysis of this water seems to have been obtained; but, from what my friend writes, it evidently contains iron and sulphur, and magnesia is also said to be present. It is promptly diuretic.

The following are some of the chalybeate and alum springs, the waters of which one would expect to be of service in hæmaturia, and some of which have a reputation for efficacy therein: Orchard Acid Springs, New York; Rockbridge Alum Springs, Pulaski Alum Springs, Bath Alum Springs, Stribling Springs, and Bedford Alum Springs, all in Virginia. In all of these waters, iron and alum are both present, accompanied, in many instances, by free sulphuric acid, by which their efficiency is increased. In one of my cases, the hemorrhage disappeared temporarily under the use of the water from the Bedford Springs, Penna., but again returned. These waters contain a little iron, but no alum. Subsequently, the same patient was promptly relieved by quinine, which had not been previously tried.

Malignant Malarial Hæmaturia.

The second more serious form of this disease, as it occurs in the tropics and the southern part of the United States, is characterized by such increased intensity of all the symptoms that it may be well called "malignant." Singularly, however, the disease has seemed to be much more prevalent during the last fifteen years. My attention was first called to it in September, 1868, when I received specimens of urine and the history of some cases from Dr. R. D. Webb, of Livingston, Ala., who wrote also that it was not known in that part of his State, at least prior to 1863 or 1864.

In this, as in the milder form, there is a distinct but more invariable history of malarial exposure, and the attack often begins as an ordinary case of chills and fever, there being often one or two paroxysms before the hæmaturia appears. At other times, the hemorrhage ushers in the disease suddenly. The urine is often black and almost tarry in consistence, and passed in unusually large quantities—it is said as much as a pint every fifteen or twenty minutes until a couple of quarts have been passed, or one or two gallons in the course of twelve hours. But after twenty-four hours, the quantity diminishes. Epistaxis sometimes occurs, but is not often profuse. Distressing nausea and vomiting of bilious and even black matter, like that of "black vomit," also occur. Intense jaundice rapidly supervenes, said to come on sometimes in the course of an hour, often in from two to six hours. The tongue is brown and dry. The bowels are at times constipated, and at others loose. Although the patient may be feverish at first, with a temperature of 104° to 106°, and the skin dry, the pulse rapidly becomes small and feeble, until it is scarcely perceptible. Drowsiness and coma sometimes intervene, and at others the mind is clear until the moment of death, which frequently supervenes within twenty-four or sixty hours; or the symptoms may subside, to be repeated again the next day, if not prevented by treatment. If recovery takes place, which it sometimes does, and lately more frequently, convalescence is slow and tedious, the patient remaining for weeks in an enfeebled and anæmic state.

In this form of the disease especially, it often happens that the coloring matter only and the débris of blood-disks are found in the urine, very few and often no entire ones being discernible—in other words we have a true hæmoglobinuria or hæmatinuria. The urine is, of course, albuminous. A specimen recently received from North Carolina, and analyzed by Prof. Wormley, contained no corpuscles,

but revealed the spectroscopic band characteristic of hæmoglobin. It contained two and a half per cent. of urea. The specific gravity of the urine ranges between 1010 and 1020, being lower when it is copious.

As to the jaundice, it is evidently a hæmatogenetic, and not a hepatogenetic form with which we have to deal. It is due, not to the retention of bile, but to the disintegration of blood-corpuscles, and the solution of their coloring-matter which diffuses through the tissues and stains them yellow or yellowish-green.

This form of malarial hæmaturia is apparently more frequent in males, and negroes appear to be exempt. This is not the case with the milder form, for it will be remembered that one of my patients was a negro.

Autopsies reveal the same intense yellow coloration of internal organs—lungs, liver, spleen, stomach, kidneys—anæmia rather than congestion, while the blood is dark hued and is indisposed to coagulate. The spleen is often enlarged.

The *treatment* for the breaking of the paroxysm is pre-eminently quinine, or quinine with mercurials; and although this does not always succeed, there seems to be no other remedy. The quinine may be given hypodermically. The nausea has been controlled by morphia and lime-water, by carbolic acid, and by creosote. In addition, restorative measures are necessary, including the free use of stimulants. In large doses (f℥j), turpentine has been used, it is said, with advantage in Alabama.

ADDRESS IN SURGERY.

By ALEX. CRAIG, M.D.,
COLUMBIA, PA.

In the busy rounds of a general practice, where we are expected to keep apace with every branch of our profession, it would be impossible to note all the improvements and discoveries that leave their impress upon the rapidly revolving wheel of progress, and yet, as I accepted the honor of presenting this report, I have endeavored to record a few of the most valuable, as they came to my notice during the year.

Much that is written, and that fills the pages of our journals, is composed of first impressions, and an impulsive desire on the part of the author or discoverer to place something new before the profession, and it is probably less my duty to bring before you the things that are new, than to cull out those that have been fairly tried and awarded a place in the list of valuables.

In this we meet with some difficulty and diversity of opinion as to what is good, and what is not. In the skilled hands of Ole Bull, the violin was a most charming instrument, and full of the sweetest music, whilst in many others its sounds are proportionately unpleasant; and so it is with many of our new instruments and remedies. There is a certain amount of skill or aptness required in their use, and what I offer you to-day will be my idea of general opinion, possibly colored somewhat with my own.

As an example of extremes, I know of none more decided than that of the Esmarch bandage. But a few years ago its merits were beyond description. The idea of a bloodless amputation, with empty arteries inviting the ligature, relieved a terrible operation of much of its terror. Later, we read of the sloughing flaps, the tendency to after-hemorrhage, and a number of other disadvantages that follow its use, and the question arises, is it an appliance of value, or is it not? From my own experience in its use, I would say it is very much as we make it. If judiciously used, it will per-

form its part most admirably, otherwise it may be followed by unpleasant complications.

More recently, the theories of Professor Lister have been filling our journals to overflowing; these, like the Esmarch bandage, find much of their worth through the manner in which they are used. While no one doubts the efficacy of the various antiseptics which have been so thoroughly tested of late, and their value amply proven, yet, in the many operations that require immediate attention, it would be almost impossible for the general practitioner to go prepared with a full outfit as recommended by Professor Lister. The greatest fault of his plan of operating, and of his mode of dressing wounds, is that it is too cumbersome and complicated for general use. The redeeming feature, and the prominent principle contained in Listerism, and the one that can be used everywhere, and is of real value, both to the surgeon and to the patient, is the perfect cleanliness it requires in performing all operations, and dressing all wounds.

In the hospital, which should be supplied with all the modern conveniences and improvements, and where cases present themselves daily for surgical treatment, the atomizer, the medicated dressings, and everything that belongs to this doctrine might well be a part of the paraphernalia, that the patient could have the benefit of it.

While on the subject of antiseptics, I feel it my duty to say a word in favor of the hydrate of chloral as a local dressing; I know it is not new, but in my hands it has proved so valuable, and is so seldom mentioned in this capacity, that I wish to introduce it anew to your consideration. Its chief advantages are its freedom from unpleasant odor, its power to arrest the secretion of pus, thus protecting against fetor, and its stimulating qualities, both to the raw surface and to the contused parts surrounding recent injuries.

Corrosive sublimate has recently been used in the capacity of an antiseptic, and is highly recommended and strongly indorsed by those who have tested its virtues. The strength of the solution used is from one part in a thousand, down to one in five thousand.

I take pleasure in referring to the efforts that are being made to teach the laity to give rational and useful aid to persons accidentally injured, prior to the arrival of skilled assistance. When we consider the thousands who are constantly exposed to bodily injury in the mines and on the railroads and in our workshops, that even the ground is tilled and the crops harvested by machinery capable of doing bodily injury, then we can realize the importance of the proper education and training of the public. In the heat of battle, where destruction is the order of the day, the surgeon is there, pre-

pared and ready to administer to the wants of the wounded, but not so in private life. There we expect to escape injury, and hence go unprepared for it. However, exposed as we are, I can readily see the value of a certain course of general training. From the time of injury until the arrival of the physician, the moments are often very precious, and frequently decide the fate of the injured one.

My reference to this subject is based upon some sad personal experience, and I confess I refer to it somewhat feelingly. Only recently I was obliged to amputate a hand which should, and would have been saved if the patient had been properly cared for in the outstart. Indeed, if he had received no attention from his excited companions it would have been better for him. The case was one of compound fracture of the forearm. Anxious to ascertain the extent of the injury, his associates exposed the affected parts by forcing up the numerous surrounding sleeves. The result of this was free venous hemorrhage from the compression of the veins. To arrest this the field tourniquet (a dangerous appliance for unskilled hands) was applied with sufficient force to prevent arterial circulation, and kept applied for some hours. Notwithstanding every possible effort was made a few hours after the accident to re-establish circulation, gangrene of the thumb and fingers followed, and amputation at the wrist soon became a necessity. The want of a little knowledge in this business cost this poor man one of the most valuable members of his body.

Although it is said by one of our leading journals "we take no roseate views of the great advantages resulting from elementary surgical instruction to the laity," I confess my faith in the principle, and sincerely trust that the efforts being made in this direction may be crowned with success.

The advantage to be derived by the physician in general practice from the post-graduate lectures offered us by competent teachers is a valuable step forward, and deserving of favorable mention here. Much of their teachings is calculated to illuminate the pathway of the general practitioner through the field of surgery.

As a thorough knowledge of anatomy is an absolute necessity to the surgeon, and as its study from the cadaver is in a manner prohibited by the laws of our State, I do not think it amiss to solicit the influence of this body to procure the passage of a statute that will permit its study without the risks and experience of the past. A law that would be of great service to the physician and surgeon, as well as to the public, is now pending, and deserves our combined influence and encouragement to secure its passage.

Many interesting and daring surgical operations have been reported to us during the past year, of which a large proportion are probably too hazardous to ever become practical. However, where it is the only hope for recovery, and death is otherwise inevitable, I believe the surgeon's knife is as much entitled to a place in the list of remedies as any other, and is justifiable even though the bowel, the stomach, the liver, or heart is the part requiring its use. Although the cases of this grave character do not present a large percentage of recoveries, yet enough are reported to justify such operations under certain circumstances.

Cardiac aspiration has been performed during the past year, but I have failed to read of a case that was benefited by it, and look upon it as too hazardous to be entitled to a place in the list of justifiable operations.

Reference is made in the *Medical Record* for March 10, 1883, to a case of "Extirpation of the Gall-bladder" which made a good recovery.

For a fuller account of these operations than time will here permit I will refer to the late report in surgery to the American Medical Association, made at St. Paul, Minn., for the year 1882, by Dr. Wm. A. Byrd, of Quincy, Ill.

Within the past few years one of the most important and valuable operations is that of nerve stretching. It has been especially beneficial in chronic sciatica, locomotor ataxia, and certain forms of paralysis, and in the treatment of such cases is entitled to consideration when other means have failed. The operation is a simple one, and not generally followed by any unpleasant results.

The surgeon meets with few more perplexing tasks than the cicatrization of burns, sloughs, or indolent ulcers. For this purpose the art of sponge grafting is taking a conspicuous place recently. A very pleasant and satisfactory account of the preparation of the sponge and of the operation of grafting will be found in the *Medical and Surgical Reporter* for March 10, 1883, quoted from the *British Medical Journal.*

The quality of the sponge, the manner of preparing, and the method of using it are so well told in the article above mentioned that I will refer you to it. The *New York Medical Record* for Oct. 7, 1882, page 402, reports a number of interesting cases of this kind, with their treatment, and the results. The same journal for July 1, 1882, page 11, also gives an account of skin-grafting, where some of the grafts employed were obtained from the rabbit, while others were human. Those taken from the rabbit adhered more promptly than the others, and showed no trace of their origin.

There is probably no class of injuries more common, and certainly none more general than fractures, and none more likely to bring us before the public through the courts of justice; hence, while I may have nothing new to offer, I think it well to keep their consideration constantly before us. The principle of extension and counter-extension, with perfect approximation of the fractured extremities, holds good in all cases, but how to accomplish this is the question to be decided at the patient's bedside. Here we are often obliged to resort to some of Dr. Levis's "surgical expedients in emergencies."

Next to fractures involving the joints, there are probably none more unpleasant to manage than those of the femur. This is owing largely to the difficulty we have in procuring perfect and continued rest of the parts; also to the action of the strong muscles surrounding, and to the fact that there is but one bone. Experience has taught me that the more simple the dressings to wounds of all kinds the better, so long as we can accomplish the desired end. So far as possible, I think it well never to disturb the original dressing of a fracture. Get the parts properly and neatly approximated in the start, and endeavor to keep them so. If the seat of fracture can be kept exposed to view, it is a great convenience, as you can then carefully watch the progress of the case.

I borrowed the idea of a fracture bed from Dr. Truesdale, of Rock Island, Ill., quite a number of years ago, which has yielded such good results in my hands, especially in fractures of any part of the femur, that I think it worthy of mention. It is so constructed as to be readily converted into a triple inclined plane, the middle or thigh plane being an extension one. The patient is placed on the bed, with the pelvis so fastened to the body plane by means of a belt constructed for the purpose as to prevent any rolling or lateral motion of the body. The foot of the broken limb is then attached to a suitable foot-piece, and placed in its normal position. The bed is now put into its triple inclined shape, and the middle plane extended by the aid of a cog-wheel and ratchet until the normal length of the fractured bone is obtained. The lower part of the extension plane is provided with a trap door for the accommodation of excrement. By this arrangement it is unnecessary for the patient to be disturbed throughout the treatment, and very rarely have I found it necessary to use either a compress or bandage to the fractured limb. Like the ordinary double-inclined plane, the extension is made at the knee, while the counter-extension is made by the weight of the body.

Another unpleasant fracture to manage is that of the patella. My

best results in these cases have been obtained with the aid of elastic belting. Placing the leg upon an inclined plane, the fragments are approximated, and held as closely as possible by the aid of adhesive strips crossed above the upper fragment and below the lower one (as the bone is usually broken transversely), and drawn forcibly together, attaching the ends of the strips to the sides of the knee; next fix a solid compress immediately above the upper fragment, and another in like manner below the lower, with the aid of adhesive strips, and also with the aid of adhesives fasten a double thickness of a rubber bandage similar to the Esmarch roller below the lower compress, bring it up over both, and fasten it carefully above the upper one, first drawing upward upon the bandage, and pressing the upper piece of bone down to its normal position. This completed, another adhesive strip should be drawn across the patella between the compresses and under the rubber, and attached to the sides of the knee. The constant contraction of the rubber will soon overcome the retraction of the muscle, and union will follow, with but little or no perceptible space between the fragments.

I have always made it a rule in major amputations to save a joint when possible, provided I could preserve it with complete motion. I do this, first, because the natural joint is better than the artificial one, even though the stump may be shorter than desirable, and also because the farther we operate from the body the better are the patient's chances for recovery.

To amputate the leg immediately below the attachment of the ligamentum patella, only the head of the fibula will remain, which is likely to turn outward as union of the parts is completed, thus making a prominence that is both unpleasant and annoying when it comes in contact with the side of the socket of the artificial limb. I call your attention to this because I have not seen it referred to in any work on surgery. The remedy is quite an easy one, for at the time of operating the head of the fibula, having no connection with the knee-joint, can readily be removed, leaving a neater stump, and thus obviating all the troubles above referred to.

Marked progress has been made in the past few years in the treatment of diseases of the eye, the ear, the throat, the skin, etc., but as many have made their management a special study, and contributed liberally to the profession through the various journals, thanking you for your kind attention, I will not occupy your time farther, but will refer you to the recent essays on these branches.

THE SOCIETY FOR INSTRUCTION IN FIRST AID TO THE INJURED.

GENERAL CENTRE, NEW YORK CITY.

OFFICE, No. 6 EAST 14TH STREET.

INFORMATION FOR LECTURERS.

THE object of this Society is to give instruction as to the proper manner and means of aiding sick and injured persons; in nursing, and the laws of health. It should be clearly understood that the Society seeks in no way to interfere with the medical profession. Its aim is not to rival but to aid the physician or surgeon. Its instruction in first aid to the injured is intended to do no more than qualify the pupil to adopt such remedial measures as may be advantageous, pending the arrival of a doctor, and by disseminating a knowledge of nursing and the laws of health it seeks to supplement the efforts of the medical practitioner.

The result which the Society especially desires to accomplish is the saving of that needless suffering in cases of accident and emergency which is so frequently caused by the ignorance of the unskilled persons with whom the patient is first brought in contact. How a person suffering from a broken limb should be handled, how bleeding from an artery can be stopped, and the treatment of other injuries requiring prompt action, are therefore the matters to which the Society gives most prominence in its course of instruction.

LECTURES AND EXAMINATION.

The course consists of five lectures, of which the following is an outline, and an examination.

LECTURE No. 1.—On the structure and more important functions of the human body, giving, without teaching names, a brief description of the bones, muscles, veins and arteries, and points where the circulation may be controlled by digital pressure; the pulse, respiration, and temperature of the child and the adult; concluding with

practical instruction on the use and application of triangular bandages.

Lecture No. 2.—On hemorrhage; the various extemporary means of arresting it; the application of the improvised tourniquet; the dressing of wounds; with practical instruction in bandaging.

Lecture No. 3.—On the immediate treatment of the apparently drowned or otherwise suffocated; burns, scalds, frozen limbs, and bites of rabid animals; the signs of fracture and first aid to be rendered in such accidents, with illustrations and instruction on the application of splints and other restraining apparatus.

Lecture No. 4.—First aid to those suffering from shock or collapse, fainting, heat-stroke, poisons; to those stunned, to the apoplectic, inebriated, and epileptic.

Lecture No. 5 (For men).—On the improvised method of lifting and conveying the sick or injured on stretchers; and the conveyance of such by rail or cart.

Lecture No. 5 (For women).—On nursing; warming and ventilating the sick chamber, the use of disinfectants, tending and observing the sick, the use of the thermometer, making poultices, changing sheets, making the bed for the sick, lifting helpless patients, and feeding the sick.

Examination.—This is as much a part of the course of instruction as any of the lectures, and should be attended by every pupil. The examiner should direct his attention particularly to ascertaining whether the pupils thoroughly understand the instruction they have received, and the use they are to make of it. Their knowledge of bandaging, the application of splints, the use of the compress, etc., should be tested by experiment. The examiner should bear in mind the practical aim of the Society. Certificates are awarded only to those showing an intelligent comprehension of the subject, and examiners should bear this carefully in mind in making their reports to Branch Centres.

Each lecture, after the first, should commence with a review of the preceding lecture, and the final lecture should conclude with a *résumé* of the course.

The foregoing statement will serve to show the course of instruction which is approved by this Society, by the St. John's Ambulance Association of England, with which "First Aid to the Injured" originated, by the New York County Medical Society, and by many distinguished physicians in this country and abroad, and has been proved by actual trial, during several years among all classes of people, to be thoroughly well adapted to the purpose for which it is intended. A close observance should be had to its terms, and

variations and digressions from it should be made with the greatest caution. Each lecturer is, however, expected to give special prominence to the treatment of the injuries to which the members of his class, or those among whom they live, are peculiarly liable, from the nature of their avocation.

Clearness, simplicity, and a careful avoidance of technical terms, so far as possible, should be the aim of the lecturer, and among classes composed of working people, great allowance should be made for their entire ignorance of everything relating to medical science. Where several methods of treatment are possible, as to restore breathing or arrest hemorrhage, one method, and that the simplest and most practicable, should be selected and thoroughly explained. To illustrate this statement, where the restoration of breathing is the subject of the lecture, the cases where that end is sought should be grouped together, and the class should be taught some simple method of accomplishing it; and, as, on account of lack of strength on the part of many pupils and of intelligence in others, artificial respiration is frequently poorly understood, the pupils should also be taught other simple means that tend to restore breathing, a dash of cold water or a slap on the pit of the stomach, for instance. But few of the points where the arteries may be compressed by the use of thumb, fingers, or compress, should be taught, as where many are indicated, confusion is apt to result. The tendency of pupils is to rely solely on compression of the arteries to prevent hemorrhage, and when asked, on examination, how to stop bleeding from the head or trunk, they are unable to answer. Care should, therefore, be taken to prevent the class from depending on compression to the exclusion of other methods.

While it is essential for the class to understand the use of the regulation triangular bandage, it is most important that they should be taught how to improvise bandages out of handkerchiefs, etc., and to adjust as splints whatever may chance to be at hand and available for the purpose. It is to meet such emergencies as occur when no proper appliances are at hand that this course of instruction has been devised.

The actual performance by the members of the class of artificial respiration, bandaging, adjustment of splints and improvised tourniquet, compression of arteries, changing sheets, making poultices, lifting and placing a subject on a stretcher, insures much better results than simply explaining the various processes, and is strongly to be insisted upon.

Frequent reference to the Society's Hand-Book will do much to induce a study of its contents by pupils.

Instruction in anatomy and physiology should be of the most elementary character, and pathology and microscopy should not be touched upon. "First Aid" is literally the aim of the Society's teaching, and anything more than that, except as to nursing and the general laws of health, is foreign to the Society's object and detrimental to the ends which it strives to attain. A simple course of instruction, telling people in plain language what they are to do when they see any one uncared for who is injured or sick, is what this Society wishes to give.

SPECIMEN QUESTIONS.

The following questions, which are specimens of those asked on the Society's examination, will be suggestive to the lecturer and to the examiner as well; to the former as indicating what he is expected to teach, and to the latter as indicating the character of the examinations which the Society requires its pupils to pass before conferring certificates upon them:—

Start at the heart and draw your finger over the course of the arteries that supply the hand and arm with blood.

What would you do for a person who had received a severe scalp wound that is bleeding freely?

What would you do for a wound on the back that is bleeding freely?

Suppose a person has received a severe cut on the hand, tell me everything you could do to stop the bleeding.

Suppose that this man or woman (indicating one of the class) has injured the wrist, and it is out of shape. What might be the matter with it, and what would you do for it?

How would you go to work on a person taken out of the water apparently drowned?

If a person were taken out of a sewer, old well, or gas tank in an insensible condition, what would you do for him?

If you found a person lying down in the street, partly or wholly insensible, what might be the matter with him?

If you decided it was apoplexy, what would you do for it?

If it was heat-stroke, what would you do for it?

How would you know it was not intoxication?

What would you do for a burn?

What would you do for a child in a fit?

What are the emetics commonly available in a house?

Tell me all you can about ventilating a sick-room.

How would you make a mustard plaster for a child three years old?

How many times does an adult in health breathe in a minute?

How many times should the pulse of a healthy child, three years old, beat in a minute?

Pupils should be strongly urged to attend examinations. The preparation necessary will do much to fasten the knowledge already gained and impress it upon the memory, and the possession of the Society's certificate is a tangible evidence of knowledge acquired which renders the holder capable of relieving suffering and saving life. The St. John's Ambulance Association has already more than forty thousand certificated pupils, and the "First Aid to the Injured" certificate will soon have in this country the actual value which it now possesses in England.

NOTE.—The above circular is printed in accordance with the following resolution, offered by Dr. Benjamin Lee, and adopted by the Society:—

Resolved, That the circular of the "Society for Instruction in First Aid to the Injured," referred to this Society, by the Committee on Medical Charities of the "Philadelphia Society for Organizing Charity," be referred to the Committee of Publication, with instructions to print it immediately following the Address in Surgery.

ADDRESS IN OBSTETRICS.

By GEO. O. MOODY, A.M., M.D.,
TITUSVILLE.

If there is any position within the limits of our profession, where the physician should be held rigidly responsible for neglect or incompetency, it is when he stands at the bedside of a woman in the perils of child-birth. He should never be allowed by law or custom to assume the responsibilities of this position until perfectly prepared, promptly and intelligently, to meet every emergency which, without a moment's warning, an attendant in such cases may be called upon to face, with the ever-present conviction that any mistake or indecision on his part may cost a human life, or doom his patient to months, and perhaps years, of helplessness and suffering, with little hope of relief, and too often with little encouragement or sympathy. To give back to her family the wife and mother escaped form these perils is the highest office of the physician, and one to which he should never dare voluntarily to aspire until he not only fully comprehends the principles which must govern him in his duties, but also the peculiar conditions of the organism with which he is dealing. If there is anything of truth in the recent assertion of a distinguished obstetrical writer, that science is constantly recording new facts, which lead us to the conclusion that there is not a single fibre of tissue nor a single drop of fluid in the organism of the pregnant woman which does not pass through some modification, surely the so-called physiological processes of pregnancy and parturition border too closely upon a pathological condition to admit of being neglected or lightly considered. Nor with the conviction that such is the truth, can any intelligent and honest physician convince himself that his responsibilities are at an end when his patient is safely delivered—an idea which custom has made too prevalent in many localities. Not only the thousand external dangers which now surround his patient, and the vitiated state of solids and fluids, but the essential changes through which the organization of every lying-in woman must pass to free itself from

the refuse of the excessive material required up to this time for fœtal sustenance, demand days of close and intelligent watchfulness to see that every organ is performing its proper duty. To those of my hearers to whom a *résumé* of obstetrical work may seem uninteresting and unprofitable, I offer these thoughts in excuse for occupying the time kindly but injudiciously granted me by the President at our last meeting, in examining some of the more important subjects in obstetrical practice and endeavoring to gather up a few of the crumbs that have fallen from the tables of our masters since any such review has been offered in this Society.

ABORTIONS.

Abortions, from causes unavoidable and from the hands of those harpies, male and female, who hang on the skirts of the profession and earn their daily bread by the nightly murder of the innocents, unquestionably result in more fatality and leave behind them a train of more serious consequences than any other accident of pregnancy or parturition. Current medical literature abounds in reports of fatal cases, yet it is undoubtedly true that a very large per cent. are never reported. A recent writer has made the statement that over six thousand women die annually in the United States from attempts at induced abortion. In some such cases death probably results from violence, but there can be no question that nearly all cases of death from abortions, avoidable and unavoidable, are the results of retained secundines. Our standard works on obstetrics almost universally leave too much to the discretion of the accoucheur, as to their immediate delivery, and with such authority, joined with the entreaties of his patient and a fear of harmful interference, an inexperienced attendant is too strongly tempted to adopt an expectant treatment. Obstetrical and other journals have been replete, during the last year, with warnings against the fatality of such a course, and the opinion is rapidly becoming universal among the members of the profession that immediate and complete evacuation of the uterus by dilatation, forceps and curette, if need be, is the only protection against hemorrhage, septic poisoning, and many other accidents liable to arise from their retention. J. Braxton Hicks, in the London *Lancet*, advises this course under all circumstances, except when the patient is utterly exhausted from hemorrhage, which can be temporarily checked, when it is better to wait till the effects of the shock have passed. This able writer utterly condemns our venerable friend, the vaginal tampon, as inefficient, uncleanly, and dangerous, recommending in its place the cervical tampon in the form of a sponge tent or some substitute for it. Dr.

T. J. Alloway, of Montreal, in the *American Journal of Obstetrics* for February, 1883, discards the tampon entirely, and strongly advocates immediate dilatation and the use of the curette in all cases of retained placenta in abortion; and in the same journal, Dr. Paul F. Mundé uses this forcible language: "The future safety of the patient demands that the secundines should be at once removed after expulsion of the fœtus in every case of abortion in which such removal can be accomplished without force sufficient to injure the woman." In support of this assertion Dr. Mundé reports fifty-seven cases in which he resorted to immediate use of the curette and forceps in thirty-one, and to the tampon in only two. Notwithstanding this high authority, I think a large majority of the profession are still in favor of an early use of the vaginal tampon in abortions, but if not used *early*, all agree it is worse than useless. The general practitioner, as a rule, can have no knowledge of his case until he finds himself confronting a violent hemorrhage, which will admit of no delay. The tampon can readily be obtained, and when properly applied, can be relied upon to control the hemorrhage. It can be easily removed and reapplied as often as cleanliness or disinfection may demand. By pressure and reflex irritation it becomes a safe and valuable aid in dilatation of the os, and in a majority of cases where it is used, before possible danger can threaten, we find the entire contents of the utereus lying in the vagina, thus rendering further operative interference unnecessary. If this does not occur within thirty-six or forty-eight hours, we cannot too strongly urge without further delay the dilatation and complete evacuation of the uterine cavity. I have always found the sensitive and educated finger the safest and most convenient instrument for this purpose when the os can be sufficiently dilated, otherwise I would resort to the curette and placental forceps.

FORCEPS.

Nowhere, unless perhaps in antiseptic midwifery, have we a more forcible illustration of the progress in obstetrical science than in the use of forceps. While a medical student, I was told by a distinguished teacher of obstetrics, that in a large practice of more than forty years' duration, he had applied the forceps only three times, and I was taught to regard it as a difficult and dangerous operation, only to be attempted as a "*dernier ressort.*" Happily the day for discussing their value is passed, and they are universally accepted as among the most efficient aids of the obstetrician, although there is still reason to believe that in some localities too frequently the agonized cry for help—the lifeless form and desolate home—may

justly charge its needless suffering and its lost hopes to an almost criminal timidity in their use. I can offer no more forcible argument against too long delay in the use of forceps than a brief reference to the record of my own practice, where I find, within a few years, no less than seven cases, mostly taken from the hands of midwives, in which the child was ascertained to be dead before the forceps were applied. We cannot fail to express our conviction from personal observation, that when greater reliance is placed upon a skilful use of the forceps by every practitioner, and less dependence upon the use of ergot, the mortality in obstetrical practice will be not a little reduced. Since any review of obstetrics has been given in this Society, Dr. Tarnier, of Paris, has offered to the profession a forceps constructed, it is claimed by the inventor, on scientific principles, with separate traction rods designed to facilitate traction in the axis of the pelvis at the point on which the head impinges; while in the handles he claims to have a sure index to that point. Tarnier's forceps, with its modifications, have excited much discussion among obstetricians, and seems to have been received with favor by many, both in this country and abroad, but so far as I am able to glean the opinions of its American defenders, they all agree that the range of its application is very limited. Prof. Lusk says, "For the upper two inches of the pelvic canal they are applicable, but for the inferior strait and the perineal groove they are most dangerous instruments." The eminent teacher, Fordyce Barker, says, "Tarnier has supplied a want in obstetrical forceps which has never before been supplied, but its application must be limited to just that class of cases where immediate delivery is required, and the head is at the brim of the pelvis, or in cases of moderately contracted pelvis. After you reach the curve of the axis of the outlet, the instrument becomes a dangerous one, and should be removed." Prof. T. G. Thomas adds to this testimony: "I have used the instruments where I have had to deliver the head at the superior strait, and have been exceedingly pleased with them, but would not apply them when the head is low in the pelvis under any circumstances. My plan has been to draw the head well down and then complete the delivery with the ordinary forceps." Robert Barnes, Prof. Simpson, and other English writers cordially indorse a modified form of Tarnier instrument. Certainly an enthusiastic indorsement from such high authorities of different nationalities, must compel us to acknowledge that Dr. Tarnier has presented to the profession an instrument of unquestionable value, and one which will undoubtedly maintain a permanent place in the armamentarium of lying-in hospitals, and of physicians with a large

consulting obstetrical practice. But the important question to be decided by the general practitioner will be, not whether with Tarnier's instrument he may be able to deliver with less expenditure of his own time and strength, but whether its use is absolutely essential to the safety of mother or child—whether, without regard to his own convenience, the same result may not be as safely attained with the forceps in ordinary use, to which he has always been accustomed, as with the heavier and more complicated instrument of Tarnier in the hands of one whose experience in their application must necessarily be very limited. To aid him in his decision, he has the opinions of a large number of able obstetrical teachers decidedly in favor of the older instrument. Prof. Braun, of Vienna, pronounces the forceps of Tarnier of little practical value, and still clings to his old forceps. Prof. Lezarewitch, speaking of the claim that they indicate the direction in which traction is to be exerted, declares that such direction can be indicated by no mechanism possible in the construction of forceps. Drs. Taylor, of New York, Wilson, of Philadelphia, and Reamey, of Cincinnati, do not recommend Tarnier's forceps to the profession for general use, and J. Matthews Duncan, of London, thinks they will never supersede the older form of instrument. Dr. Albert H. Smith, of Philadelphia, in an exhaustive paper, read before the American Gynecological Society, asserts that the principle of Tarnier's instrument is by no means new, and that all the advantages to be gained by it are possible with the ordinary forceps. He thinks no traction should be made in the length of the handles, but that the extractive force should be expended in a firm and steady pressure with the palmar surface of one hand upon the lock in the direction of, or parallel to, the axis of the pelvis at the point on which the head impinges, and a steady lifting upward of the handles in an opposite direction. This simple and comprehensive direction of Prof. Smith certainly commends itself to our consideration, and whether or not he succeeds in convincing the advocates of Tarnier of the truth of his claim, surely, in his defence of the simpler form of instrument, he will have the sympathy of a large number of the profession, so long as the indorsers of the new forceps unanimously admit that it cannot replace, but must become an adjunct only, to the older form So far as I am able to determine from my own experience, I think that the simpler forceps, properly constructed and skilfully used, are sufficient to deliver any case to which the forceps are applicable, without serious injury to mother or child. In a tabulated record of nineteen hundred cases of childbirth and abortion, taken from the private practice of my former colleague, Dr. Geo. W. Barr, and

myself, I find forty-one cases of forceps delivery without a single discovered injury to the parturient canal, except an occasional ruptured perineum. I say *discovered* injury, because we have only been taught within the last few years to search for a lacerated cervix after the use of the forceps; and this accident may have happened without being discovered. Dr. Alexander Duke presented at the meeting of the Dublin Obstetrical Society, in June of last year, an appliance consisting of tractors to be attached to any long forceps; and when additional tractile force is required, he attaches to the tractors a belt to be placed around the waist, and thus bring to the aid of the arms all the force of the whole muscular system.

Dr. Cole, of California, and Dr. Grainger, of Massachusetts, each presented a new form of forceps before the Obstetrical Section of the American Medical Association at the last meeting.

PUERPERAL CONVULSIONS.

The number and variety of therapeutical measures presented to the profession for the relief of puerperal convulsions is conclusive evidence of the inscrutable mystery which continues, despite all research, to surround this dreaded disease. Venesection, the hot bath and pack, quinine in ten-grain doses repeated every two hours, morphine hypodermically in two-grain doses, jaborandi, pilocarpin, tincture of stramonium in ounce doses, oleum tiglii, bromide of potassium, chloral hydrate, nitrite of amyl, and veratrum viride, are among the remedies which have been extolled, some of them as specifics, during the year just passed, by members of the profession anxious to serve science and mankind; and yet, "*mirabile dictu*," statistics show that the death-rate remains practically unchanged. The theories advanced as to the pathology of the disease are so various as probably to render it quite impossible to decide upon any one which will be entirely acceptable to a majority even of the leading obstetricians. It must, however, be evident to all, that no single cause can account for the phenomena in all cases, although undoubtedly in all cases a predisposition to the attack exists in the abnormal condition of both fluids and solids of the pregnant woman. I infer the opinion predominates among the profession, that there is a form of puerperal convulsions in which the nervous system is mainly implicated, and which generally recovers with almost any or almost no treatment; and the suspicion has sometimes forced itself upon me, that many of the reported recoveries, under the use of remedies for the favorable action of which no explanation is given, may belong to this form of the disease; that there is a second form,

apoplectic in its character, the brain being the principal seat of the lesion, and in which venesection and cathartics are the remedies *par excellence*, although in my own hands, possibly from errors in diagnosis, venesection has been almost universally disastrous.

In the records of our private practice already mentioned, I find the report of fifteen cases of eclampsia, in four of which all the symptoms pointing to the apoplectic form, blood-letting was early and freely resorted to, with a fatal result in three of the four cases—I can only claim the consolation of hoping, not on account of, but notwithstanding the treatment. In the *Medical and Surgical Reporter* of January 6, 1883, I find a report of four cases treated by venesection, resulting in two deaths and two recoveries; nor are these the only records that have fallen under my observation during the year, in evidence that venesection is no specific in this disease. A third form, more fatal in its immediate results, and more serious in its remoter consequences than either of the former, is the uræmic puerperal convulsions. Many prominent contributors to recent medical literature, among whom I find Schröder, of Berlin, Ingerslev, of Copenhagen, and Halbertsma, of Utrecht, consider a large per cent. of puerperal convulsions to be of this form, due to retention of the urea from pressure or other interference with the renal circulation. I must confess my inability to discovery any generally accepted plan of treatment in this form of the disease. I have seen about thirty cases reported during the year, and the variety in treatment has been nearly equal to the number of reporters. Prof. Schröder considers it an extremely dangerous and fatal form of the disease, and most urgently advises to terminate labor at once when albuminuria makes its appearance during pregnancy. (*Am. Jour. of Obst.*, 1881.) A prominent English writer on this subject says, "with our present knowledge of the disease we have no better plan than to follow the same general line of treatment as in uræmic poisoning in other forms of acute nephritis." Carl Braun, of Vienna, expresses great confidence in the hot bath and pack, and reports several cases promptly relieved of the œdema by this treatment, while for the eclampsia he considers chloral hydrate the sovereign remedy. Combined with such remedies as circumstances in each individual case might indicate, I believe no more rational plan of treatment has been proposed for the uræmic form of convulsions. Venesection also has its advocates in this as in other forms of the disease. When our cases can be watched and venesection be resorted to as a prophylactic at the first warning of trouble, I have no doubt, by relieving the blood-pressure and thus arousing the organs of excretion into renewed activity, it may be of much value in warding off the attack, but for

the relief of an established uræmic eclampsia, I must confess I should approach this remedy as a doubting Thomas. Dr. Barr and myself, in our small experience of fifteen cases, have made it our invariable rule when pregnancy was near its term to deliver as rapidly as was consistent with the safety of the patient. We seemed to have obtained better results from large doses of chloral hydrate and bromide of potassium than from any other internal medication, in which our field of experiment has been somewhat extensive. Dr. Thomas Wilson has recently reported, in an English journal, the rapid disappearance of albumen and a marked improvement in all the attendant symptoms in two cases of albuminuria in non-pregnant patients following the use of this remedy. This, of course, cannot be accepted as deciding anything, but should further trial confirm the observation, it may lead to an explanation of the favorable action of chloral hydrate in uræmic convulsions.

SUPPORT OF THE PERINEUM.

If to support means to watch over and protect from harm, I have failed to observe in recent medical literature any expressed opinion which would lead me to the conclusion that perineal support has any opponents. I have been able to distinguish in the various discussions very little more than a difference in methods to attain the same results.

Dr. Theophilus Parvin advises placing the woman on the left side during the second stage of labor, encouraging frequent respiration, and preventing all bearing-down efforts, by anæsthetics if necessary. He objects to the use of the fingers in the rectum, as tending to increase excitability and nervousness, and advocated direct support of the perineum with the naked hand. If rupture seems inevitable, he would resort to episiotomy to save the anal sphincter.

Dr. A. H. Smith finds a solution of the problem in the management of the head rather than in direct support of the perineum. He diverts the strain from the raphé to the lateral parts of the perineum by making pressure with the thumb and fingers upon the presenting part of the head as it presses upon the raphé, thus changing the shape of the head, and relieving the tension at the threatened point. When the danger of rupture is imminent, he does not hesitate to make the lateral incisions, but applies to the cut surfaces a strong solution of carbolic acid to protect against absorption.

Dr. W. T. Howard, of Baltimore, has found nothing in his experience which acts so promptly in relaxing the perineal tissues, and permitting a safe passage of the head, as placing his patient pro-

foundly under the influence of an anæsthetic. I have frequently convinced myself of the value of this plan, but would suggest strongly emphasizing the modifying adverb, lest the inexperienced thereby come to grief. Anything less than profound anæsthesia loses control of the patient's will, and the natural inclination to expulsive efforts becomes uncontrollable and irresistible.

After a fair trial of several plans, I have found no more efficient method to control the head and protect the perineum than that described in this Society, I think by Prof. Goodell, of passing the fingers into the rectum, the patient being on her back, and directing the head into the axis of the vulva by pressure on the forehead and face as they are forced down, and at the same time watching the presenting part with the thumb, making backward pressure upon it when required. I think also we should always recognize the fact that variations in the pelvic formation, as well as in the part presenting, must, in some measure, modify the amount and direction of the counter-pressure used. I do not hesitate to say that it has been my experience to observe more serious injuries from the head being forced violently through the vulval orifice with an unprotected perineum, than from a careful use of the forceps. Immediate operation is almost universally advised in torn perineum, and not least among arguments in its favor is the aphorism, "a bird in the hand is worth two in the bush." I now know several women who drag out a weary existence with a floorless pelvis rather than submit to a secondary operation. To obviate this misfortune, Dr. Dyhrenfurth, in two cases of failure of primary union, has powdered the surface of the wound with iodoform, and immediately reapplied the sutures, with a favorable result.

EXTRA-UTERINE PREGNANCY.

Until within a few years, the unhappy victims of this misfortune were considered almost beyond the aid of science. Early diagnosis was exceedingly uncertain, and later interference a forlorn hope; but thanks to the introduction and perfection of antiseptic measures, a new era has dawned in operative surgery of the abdominal cavity, which is now explored with a boldness and confidence that a few years ago would have been considered little less than criminal, and the successful treatment of extra-uterine pregnancy has been one of its brilliant results.

Dr. A. D. Rockwell, of New York, has recently published an interesting report of seven cases in which the vitality of the fœtus was successfully destroyed by the use of electricity.

Dr. Rockwell considers galvanism the preferable form, and thinks

the strongest current compatible with the safety of the woman insufficient to induce abortion. Several other cases successfully treated by this method have been reported, but so far as I can learn neither a failure nor an accident.

Dr. Fränkel advises the early destruction and absorption of the fœtus by aspiration of the sac and morphine injections. As this plan in the uncertainty of an early diagnosis must be attended with more or less danger, electrolysis would seem the surest and safest measure yet proposed to destroy the vitality of the fœtus, the most efficient to hasten absorption of the fœtal tumor, and in case of error in diagnosis harmless to disturb a normal pregnancy. When we consider the slight probability of saving the life of the child, and the magnitude of the dangers which constantly threaten the mother, it becomes our evident duty to resort to this safe and simple plan of treatment at the first suspicion of extra-uterine pregnancy.

From an analysis of twenty-one cases seen by himself, Prof. Thomas recommends the destruction of fœtal vitality by electrolysis, if discovered before the end of the fourth month. If operative interference were demanded later, he would resort to laparotomy or elytrotomy. In abdominal pregnancy, he would wait for the full term of gestation, and deliver by the same methods; but when the full term is passed, and the fœtus dead, he would allow nature to choose an outlet, standing by to aid or anticipate her as circumstances might demand. In rupture of the fœtal nidus, he would still intrust the case to nature, but with the strictest vigilance, and if hemorrhage or blood-poison threaten the life of his patient, he would promptly resort to operative interference. The hemorrhage inevitable in the removal of the placenta, and the danger of blood-poison from its being left behind, render laparotomy, in the opinion of Prof. Goodell and other operators, extremely hazardous during fœtal life.

Dr. Martin, of Berlin, has endeavored to meet this danger by ligating the placental base *en masse* before removal. He then resects, as far as possible, and closes the sac-walls, cutting off all connection with the abdominal cavity, and draining through the vagina.

OXYTOCICS.

The use of ergot as a uterine stimulant in labor can claim few, if any, advocates in recent medical literature, although its value in maintaining post-partum contractions and hastening uterine involution is attested to by many of our leading writers. Dr. Chahbazian, of Paris, has described an alkaloid of ergot which, given hypo-

dermically in a maximum dose of one-fifth of a grain, is followed by no abscess or induration, and produces certain and firm contractions in from two to five minutes after its introduction. Such an alkaloid, if easily obtained and preserved, would be of great value in post-partum hemorrhages, in which ergot in its usual form is almost valueless, from its slow and uncertain action.

There has been much and earnest discussion during the year as to the value and danger of quinine during pregnancy and labor. Dr. Bardell, of Colorado, is positive that it is not only harmless during pregnancy, but is one of our most trustworthy resources in threatened abortion, and, after a trial in more than sixty labors, he pronounces it the safest and most reliable oxytocic at our command.

Dr. Campbell, of Georgia, after a long experience, writes, instead of withholding quinine from a fear it may produce abortion or premature labor, "I give it most punctiliously to prevent abortion in the malarial district of the south." Others have urged with equal earnestness that it is dangerous during pregnancy, and useless during labor. With such diversity of opinion, it would seem that until the medical millennium dawns, we must mainly rely upon our own experience and observation. I have given it in moderate doses in all stages of pregnancy for more than twenty years without observing a single unfortunate result, and in protracted labor with uterine inertia, I have thought it rendered positive and substantial aid.

LACERATION OF THE CERVIX.

The causes, symptoms, effects, and the operation for the relief of this lesion, were so fully treated at a recent meeting of this Society, that no extended review will be in place or attempted by me. The subject has called out much discussion both in this country and abroad, and since Prof. Goodell's able address many data have been collected bearing on the results of the operation. While it seems evident that the operation may have an important influence as a cause of sterility, we cannot, on this account, condemn it, as it is by no means certain that the condition which demands it may not be as disastrous to successful pregnancy as the operation. So far as I can form an opinion from published reports, I conclude the liability to a second laceration in subsequent labor is very little increased. Evidence has accumulated that carcinomatous degenerations frequently take their origin from this lesion, and the possibility of preventing this dreaded disease is alone sufficient to justify the operation.

To the accoucheur, we briefly suggest, as precautions, the same watchfulness in the use of the forceps within the os, as he employs

to protect the perineum—the substitution of tireless patience for the injudicious use of ergot—anæsthetics in precipitate labors, and opium or other sedatives in tedious first stage of labor.

POST-PARTUM HEMORRHAGE.

I can offer no more conclusive evidence of the dangers from post-partum hemorrhage than the official report that four hundred and ninety-seven women died, in Great Britain alone, during the year 1881, from this accident; and many who survive, says a celebrated obstetrical writer, if they ever regain their health, do so after a long and perilous struggle. Several valuable papers have been added to the literature of this subject during the last year, which rather discuss the remedies already before the profession, and attempt to settle disputed questions as to their value and safety, than to present any new methods of treatment.

In reviewing the literature of the accident, I could but be forcibly struck with the truth of Prof. Thomas's remark, that "so many individual remedies for hemorrhage have been brought forward, that the student is utterly dazed when he comes to the scene of action; and even men of large experience are often seized with hesitation concerning the common-sense line of practice by which they should be guided at the bedside." Failing by ordinary means to produce firm uterine contractions, Prof. Thomas carries the hand, thoroughly cleansed and dipped in strongly carbolized water, into the uterine cavity, sweeps everything out, and irritates its walls by passing the palps of the fingers over their internal surface. He believes no remedy to be compared to this simple plan in producing prompt uterine contractions, and if resorted to before the nervous system is entirely prostrated, it will check post-partum hemorrhage in ninety-nine cases out of a hundred. In one case, where all other means had failed, he produced immediate and firm contraction, and probably saved the life of his patient, by passing a strong current of electricity through the womb, and he urges a more extensive trial of this safe and easily obtained remedy. He does not favor intra-uterine injections, but when resorted to, prefers tincture of iodine, or still better, the common vinegar, as recommended by Dr. Penrose, of Philadelphia, to the iron, as introduced to the profession by Dr. Robert Barnes, which he would utterly reject, except as a last resort.

Dr. T. M. Madden, of Dublin, makes the statement of practical value, if supported by other observers, that the condition of the circulation is of much importance as an early indicator of probable

hemorrhage. He has never observed a permanently quickened pulse during labor—that is, a pulse not regaining its normal rate during the interval of pains, that post-partum hemorrhage did not follow, unless avoided by proper preventive treatment. Dr. Madden admits the dangers attending the intra-uterine injections of iron, but thinks we meet with cases in which the immediate danger of death from hemorrhage outweighs the dangers from the use of the styptic. Many prominent obstetricians still condemn, under all circumstances, the iron injections; but I believe a large majority of the profession agree with Dr. Madden, that when other remedies, among which I cannot fail to mention hot-water injections as one of the most efficient and easily obtainable, have disappointed us, and death seems imminent, we are justified in its use, with proper precautions.

PLACENTA PRÆVIA.

In no emergency which the physician is called upon to meet in the discharge of his duties can it be said with more truth than in placenta prævia, that the first requisite of the accoucheur is an ability to recognize instantly what can and what cannot be done. My own experience in this alarming accident has been very limited, but sufficient to convince me that no fixed plan of treatment can be followed in all cases. Hofmeier, of Berlin, has recently published a report of thirty-seven cases under his care, with the unprecedented mortality of only 2.7 per cent. He rejects the tampon, and relies mainly on the Braxton Hicks method of version, bringing down the feet, checking the hemorrhage by the pressure of the buttocks. In all cases, he gave ergot hypodermically, and washed out the uterine cavity with a five-per cent. solution of carbolic acid. Among general practitioners I think eight out of ten still adhere to the tampon, unless special indications point to some other line of treatment. I have seen no more simple plan than the one advised by Prof. T. G. Thomas, of a tampon formed of a conical linen bag, stuffed with carbolized cotton (possibly styptic cotton might take the place of the carbolized), the apex of which is forced into the os as far as possible, the vagina packed around it, and firm pressure maintained by means of a T-bandage. We thus aid coagulation, dilate the cervix, and compress the bleeding vessels. As soon as the os is dilatable, if the hemorrhage is not entirely controlled, deliver at once. When the tampon fails, he resorts to Simpson's method of removing the placenta, and leaving the child to be delivered by nature.

ANTISEPTIC MIDWIFERY AND ITS RELATIONS TO PUERPERAL FEVERS.

In no other department of medicine or surgery does antisepsis, in its broadest sense, play so important a role as in midwifery. Many physicians with a large surgical practice, embracing severe fractures and lacerated wounds of a character so extensive and serious as to jeopardize life, have rarely, or perhaps never, met with pyæmia as the result of such injuries, while there are very few who have not seen more or less fatality from the justly dreaded diseases, puerperal fever, septicæmia, and pyæmia, in women who have passed an easy confinement, without prostration or cause for alarm. In seeking for an explanation of the causes for the extraordinary dangers which over-shadow the puerperal woman, it at once becomes evident that the external causes are far less potent than some intrinsic condition to be sought for within the organism of the patient herself; and when our attention is turned in this direction, we cannot fail to discover the object of our search. During the months of pregnancy the maternal organism is called upon to perform a double task, of self-support and the providing and elaborating material for the nutrition of the fœtus. The increased work of nutrition must necessarily be supplemented by an increased exertion on the part of the excretory organs, to free the system of the excess of débris resulting from the additional demand for constructive material. As the term of pregnancy approaches, these organs, encroached upon by the expanding uterus, are pushed from their normal positions and crowded against the surrounding tissues, their circulation is interrupted, and their energies are paralyzed to a degree that renders the proper performance of their duties impossible; and too often the system, overcome by the accumulated refuse, falls a prey to an attack of eclampsia. If the pregnant woman escape these dangers, the final act of parturition leaves the system prostrated by its preceding herculean labors, the blood under the most favorable circumstances vitally impaired, and if perchance a severe hemorrhage has occurred, in a still more deplorable condition.

The importance of post-partum hemorrhage in this connection, and the accepted fact that puerperal fevers are very liable to follow this accident, is too frequently overlooked in the immediate triumph of having delivered our patient from a present and alarming danger. It would seem that the overworked system might now be permitted to recover its exhausted energies, but physiological laws have otherwise ordained. The processes of building up and maintaining a new life have now been completed, and the material required for this purpose has not only become superfluous, but is rapidly to become

an active source of self-poison, unless promptly removed, and the organs of absorption and excretion are required to perform this extra service. We here have an organism in the most unfavorable condition to resist the shock and ravages of an inflammatory process, but in the most favorable condition for the lighting up of such inflammation at the least indiscretion. If I have succeeded, however imperfectly, in reproducing a recognizable picture of the female organism during the pregnant and puerperal state, a slight examination of its salient points cannot fail to discover why a *materies morbi* which the non-puerpera will resist with slight disturbance, will in the puerpera light a fire that all the skill of medical science may fail to extinguish.

To this disturbed condition during pregnancy, and a failure to maintain a proper balance between the organs of absorption and excretion during the puerperal state, must be attributed most of the fevers of a more or less serious character which are so frequently observed after confinement, and for which we can discover no assignable external cause; and if antiseptic midwifery in its widest significance means an attempt to prevent blood-poisoning, whether *endosepsis* or *exosepsis*, it is evident its surest foundation must be laid during the latter months of pregnancy. Added to these certainly not fanciful dangers, are other important factors. Within the uterus we have an extensive wound with its open vessels, caused by the cleavage of the placenta, and along the parturient canal lacerations more or less severe, probably in nearly all cases present in some degree, all open doors for the unobstructed entrance of any poisons left within their portals or conveyed to them from without by the hand or instrument of the careless accoucheur or ignorant nurse. Dr. Barnes has suggested as being a still more extensive and, it seems to me, dangerous route for the transmission of poisons, the whole surface of the mucous tract, denuded of its epithelium and constantly bathed in the infected fluids.

When we seriously reflect on these inevitable dangers, the important question must force itself upon us, How is the lying-in woman to be best protected from them? and recent experience in medicine and surgery would seem to indicate that it is to antiseptic midwifery we are mainly to look for a solution of the question, preceded and rendered more effective, as I have already said, by the strictest watchfulness during the later months of pregnancy.

Having brought our patient to the moment of labor under the best conditions to resist the effects of poisons from within or from without, we should, during labor, rigidly adhere to the antiseptic laws which govern surgical operations within the abdominal cavity. The

hands of the accoucheur and every other instrument which is to come in contact with the parturient canal, during or after labor, should be thoroughly disinfected, and as soon as labor is terminated the uterus should be firmly and permanently closed by external irritation, oxytocics, and the pad and binder. This Dr. Barnes considers the foremost measure in the scheme of antiseptic midwifery, and says he has for several years been in the habit of giving three times daily for two weeks after confinement a mixture of quinine, ergot, and digitalis.

The next, and in my opinion by far the most important step, and one which must be taken before putrefactive changes can possibly set in, is the frequent and thorough washing out of the vagina with disinfecting injections of carbolic acid or permanganate of potassium, the application to every fresh rent or fissure in cervix or perineum, where it is possible for septic poison to gain admittance, of a strong solution of carbolic acid; and finally, the closure of the last portal against external infection by a constant application to the vulva of a thoroughly disinfected napkin. These measures are simple, easy of execution, and perfectly safe, and we have abundant proof in support of their efficacy in the reports of several lying-in hospitals published during the last two years. After the second day, Dr. Barnes strongly emphasizes the daily use of intra-uterine injections of a solution of carbolic acid, iodine, or perhaps better than either, sulphurous acid, one part in forty of water, and the same distinguished authority thus summarizes antiseptic midwifery:—

"1st. Keep the door shut against the enemy by maintaining uterine contractions.

"2d. Prevent the enemy from forming and collecting by irrigating the parturient canal with antiseptic fluids.

"3d. Eject the enemy as fast as he effects an entry by keeping the excretory organs in activity.

"4th. Guard the lying-in chamber against the approach of foreign poisons.

"5th. Fortify the patient against the attack of the enemy by keeping up due supplies of wholesome food."

The habitual use of intra-uterine injections as a precautionary measure against puerperal fevers, seems to be almost universally condemned in this country, and to number among its opposers many of the leading writers in Germany, where it has been very extensively tested. Hofmeier, in the *Zeitschrift für Geburtshülfe und Gynäkologie*, reports having treated two hundred and sixty cases by intra-uterine injections, many of which suffered from

attacks of puerperal fever, which he could only attribute to the treatment; and Dr. Max Runge clearly ascribes an epidemic of puerperal fever in the Berlin lying-in hospital to the same treatment resorted to as a prophylactic measure. But when through neglect or from any other cause septic poison has found access to the circulation, testimony of the favorable results of intra-uterine injections has been so voluminous and positive as to render it impossible to reject it.

Unfortunately no definite course of internal medication for puerperal septicæmia has yet been proposed, which by its success can claim such universal support from the profession. Opium, stimulants, quinine and iron still hold their pre-eminence as remedies. I have noticed several cases recently reported as rapidly recovering under the use of iodoform and salicylic acid. Of the latter I have been able to form no practical opinion, but that the former too often proves ineffectual has been my bitter experience. I think there are many who do not yet despair that more extensive research into the relation of micro-organisms to septic poisons may lead to practical results in the discovery of a more successful plan of treatment in puerperal septicæmia and pyæmia, and cases have been reported which lend encouragement to this suggestion.

At a meeting of the Obstetrical Society of New York, April 4, 1882, Dr. W. M. Polk reported the rapid recovery of a case of puerperal septicæmia in the lying-in wards of Bellevue Hospital under hypodermic injections of phenic acid, which had failed to improve under the routine treatment of quinine, cold affusions, uterine injections, etc., and at the same meeting Dr. R. F. Weir reported having used the same treatment with the most gratifying results in cases of septicæmia in the surgical wards of the same hospital. Dr. Sloan, of Glasgow, in the *Lancet* for December, 1882, reports a well-established case of puerperal pyæmia, despaired of under the usual methods of treatment, which promptly recovered by the hypodermic use of the oil of eucalyptus, preferred by him to carbolic acid as an antiseptic on account of its non-poisonous character. May we not hope that continued investigation in this direction may eventually result in giving us a more reliable and successful plan of treatment with which to contend against these fatal diseases?

ADDRESS IN HYGIENE.

By HENRY LEFFMANN,

PROFESSOR OF CLINICAL CHEMISTRY AND HYGIENE IN THE PHILADELPHIA POLYCLINIC AND COLLEGE FOR GRADUATES IN MEDICINE

THE HYGIENE OF EXPOSURE.

Preventive medicine is of ancient origin. The father of the science embodied in the title of one of his works the three great influences that affect health, *the air*, *the water*, *and the place*. The perfect service, however, of the physician, both in the prevention and cure of diseases has been greatly abridged in times past, by erroneous theories. As long as the ills that flesh is heir to were regarded either as special visitations of Providence, or as the result of the malign influences of witchcraft and magic, preventive and curative measures were alike unsatisfactory. Overwhelmed by epidemics, the devout communities of former times have sought relief, not in hygienic measures or scientific treatment, but in prayers and penance, or, in more barbarous times and places, by sacrifices and votive offerings. We have at last passed beyond these errors, and not only have scientific men recognized disease as the natural result of infringement of natural laws; but, what is more important to the success of legitimate hygiene, the general truth of this view has been admitted by the less educated community. The sanitarian is not obliged to pursue his work under the opposition of the multitude, but he receives fair encouragement. In spite, however, of the progress that has been made, we are still the slaves of opinions that are honorable only for their antiquity, and we are startled by dangers as imaginary as those of witchcraft; we waste our energies in combating harmless influences while the true causes of disease are left unnoticed.

The last few years have witnessed the most energetic researches into the causation and communication of disease. The germ theory, which a little over a decade ago was a mere whispered hypothesis, accepted more on account of its plausibility, and for want of other definite views, has become, under the labors of Pasteur, Tyndall, Koch,

Formad, and many others, almost like the atomic hypothesis in chemistry, or the undulatory theory of light, an authoritative dogma demanding general acceptance. The gentleman upon whom devolved last year the duty of presenting the address in hygiene, gave the Society a lucid account of the nature of germs; and since that meeting the claims of Koch to the discovery of the cause of phthisis has been put forward. Investigators are, however, not unanimous in their acceptance of these recent views, and we may, I think, safely leave the discussion of them to the experts, content to accept the correct view when it has been determined for us. We may do this all the more willingly if we reflect that the conservation of public health can be secured upon principles not dependent on any theory, but based on the extended experience of mankind. Whether we believe with one school that infectious and contagious diseases are the result of the development of living organisms, or with the other, that these organisms are merely concomitants of the diseased process, or at most only carriers of infection, we will still agree that cleanliness, temperance, fresh air, and sunlight are the influences which are best suited to limit the extension and virulence of epidemics, and to give to each individual the highest powers of resisting disease.

Notwithstanding that these influences are generally recognized as potent, the medical profession does not sufficiently insist upon their importance. Cleanliness, it is true, both of person and place, is a prominent item in medical advice. The sanitary disposal of refuse is one of the subjects that are now attracting a great share of attention, and it will not be long before extended reforms will be accomplished. Many of us may live to see the time when intelligent communities will have come to recognize the dead human body as an item of refuse, and, throwing off the sentimentalism which now surrounds the practice of burial, will have learned the proper disposal of the dead by cremation.

Microscopical research has shown that minute animal and plant forms thrive with greatest vigor in dead and decomposing material, and on the basis of this knowledge have grown up not only scientific systems of disinfection, but also many methods that are valueless and absurd. The inventor has gotten abroad extensively in sanitary science, and the result is a long list of sewer-traps, ozonizers, disinfecting liquids, germ-killers, etc., which are liberally advertised and freely purchased. A few months ago I analyzed an ozone powder which was being sold to farmers at a rate of about one dollar per pound, and found it to contain about 90 per cent. of sulphur and 10 per cent. of charcoal, capable, therefore, of producing no ozone,

and worth only a few cents. I am fully of the opinion that sanitary measures will be best carried out when we abandon all these so-called disinfectants, the majority of which are gotten up by non-scientific persons, and fall back upon the long established principles that the destructive action of heat and the diluting and oxidizing effect of fresh air are the best disinfecting agents. In regard to ozone, chlorine, and similar corrosive bodies, it cannot be denied that they exercise destructive action upon disease germs, whatever may be the nature of these germs, but to accomplish this destructive effect we must often use them in such degree of concentration that they will act injuriously upon the articles to be disinfected, and also upon the living beings of the higher order. To carry them to the extent of rendering a place safe we must generally render it uninhabitable.

It may seem like an inexcusable waste of the time of this Society to say that one of the great means of preserving health is fresh air, but few fundamental truths of science are so generally accepted and so little applied as this one. It remains a mere sentiment. How little is done by medical men in practical exemplification of the established and well-known principles of air chemistry! Among the worst ventilated rooms I have ever been in, were the lecture rooms of the college at which I received my medical degree. This indifference is the more to be regretted, since it perpetuates and intensifies wide-spread errors. The community at large entertains the belief that the open air may and often does become the active cause of disease. We live in dread of "drafts," in fear of "raw" and "night" air, and other atmospheric conditions, of which the dangers are more imaginary than real. A large number of facts are now on record which prove that exposure to the vicissitudes of the weather can be borne even by sick and injured persons, not only with safety, but with advantage; and that in some diseases this exposure seems to constitute an important assistance in the treatment. It is pleasing to see the advance that is making in the theory of the origin and nature of "colds," so long an *opprobrium medicorum*. We are now coming to the view that colds are "caught," not so much by exposure as by the want of it, and that the method of preserving the health, especially in persons of no great heartiness, is not to keep out of the vicissitudes of the weather, but to keep in them. The deteriorating influences that affect us most are foul air, and the taking of food in excess, and of bad quality. I am not even disposed to include drinking water as so prolific a cause of disease as some are inclined to. Prof. Mallet, of the University of Virginia, has lately by his researches upset most of the modern methods of water analysis; and Blyth, an

English hygienist of eminence and ability, has reported the case of a town in which the drinking water, according to all chemical and medical standards, was utterly unfit for use, and yet the average of mortality and sickness was no higher than in towns supplied with good water.

To return to the question of the effects of exposure, we may admit that the sudden and especially the unequal cooling that results from allowing a current of cold air to impinge upon a portion of the body, while the individual is inactive or overheated, may be followed by effects more or less serious, but we misinterpret the significance of this result. We fear the draft as something specifically injurious, and overlook the unfavorable conditions brought about by inaction, and the imperfections of our indoor apartments. No harm can result from the ordinary movements of air currents, or from exposure to moderately low temperature if common sense precautions are taken to protect the body from unequal cooling.

In no part of our daily life is this principle so generally disregarded as in our sleeping apartments. Almost every human being passes about one-third of his existence in sleep, and, therefore, the circumstances under which this sleep is taken must have a great influence on the health of the individual, yet it is in our sleeping-rooms that the absurd fear of drafts exercises its most baleful influence. Throughout the entire cooler part of the year, the majority of persons will be found sleeping in rooms closed tightly, or with a mere pretence of ventilation. A suggestion that the windows should be opened is met by the assertion of the danger of taking cold. Yet it is difficult to see how such can be the case, particularly as in the arrangement of the bedding, according to the American fashion, the body is well protected from sudden cooling, no part is exposed except that which is well fitted to bear the brunt of exposure, and common experience teaches us that the body is kept warm in bed more thoroughly than in our daily clothing. So far from the practice of sleeping in freely ventilated rooms being the cause of any danger from colds, it will be found to be one of the best preventives of them. I can record here the experience of two persons who have been sleeping all the last winter in a room so arranged that they were lying in the direct line between an open door and open window, this system being carried out uninterruptedly during the coldest and stormiest weather. One of these persons has in addition followed continuously the rule of not sleeping in any clothes worn during the day, and has consequently put on cold night-clothes and gotten into a cold bed, and put on cold clothes again on getting up. All this practice, which many would

think dangerous, has really been healthful and beneficial. A bold and rational system of exposure is not only preservative of health, but is a method of restoring it in the diseases which arise from overcrowding and bad ventilation. I have so much confidence in the system myself, that if, like Peter's wife's mother, I "lay sick of a fever," I should seek treatment in a room with free ventilation.

It is not proper that I should detain this Society with extended quotations from well known authors, but I cannot avoid emphasizing my opinions by one or two short allusions, taken from notes in Parkes's Hygiene.

In 1814 in an epidemic of typhus fever at Paris, some cases were placed in a building in one of the highest and breeziest parts of the city. This was done with much fear of the result, and probably only from necessity, but these cases did infinitely better than those in regular hospitals. Also in 1847–48, in Ireland, cases of an epidemic fever, treated in open air, and in the rudest sheds, recovered in larger proportions than those treated in more protected quarters.

Since 1854 the sick of the Austrian army have been largely treated during eight or nine months in the year in well-ventilated tents in preference to hospitals. The result has been beneficial both as a preventive and curative measure.

Similar experience to these cases is recorded in the reports of the late civil war in this country. Typhoid fever cases treated in tents in the field recovered in larger percentage than those treated in the finely arranged city hospitals.

"Night air" is another bugaboo, which keeps many a person indoors, to the detriment of health. Nightfall brings with it a few atmospheric changes, such as fall in temperature and increase in dampness, but changes in both these respects occur during the daytime to a much greater degree without exciting alarm. Our fear of night air is largely sentimental; the effect of the darkness and quiet on the mind, and the dangers of exposure after dark, against which invalids are so generally warned, are imaginery. I was glad to hear Dr. Carl Seiler say some months ago in a discussion at the Philadelphia County Medical Society that he had found that persons who, by reason of their daily duties, could take exercise in the open air only at night, progressed as favorably as those who exercised during the day, and this expression in reference to a single class of cases will be found generally applicable.

We have witnessed of late years an extended discussion of the dangers of sewer-gas. When obscure or strange diseases appear in any locality, inquiry is at once directed to the drainage, and in view of the general carelessness in house construction, the search

for defects is generally successful, and this defect is at once assigned as the cause of disease. Yet upon the same method we could show that such diseases were caused by leaks of gas-pipes, for these will be found when looked for. Our attention is attracted forcibly to those cases in which disease is associated with the escape of sewer-air, and we overlook the large number of cases in which defective drainage exists without producing disease. The point of hygienic importance is, however, in the fact that when we detect sewer-gas in a house the danger is not in the bad air which is getting in, but in the bad air which is not getting out. The indication is not expensive plumbing, nor patent traps, nor fancy disinfectants, but to open the windows and keep them open, and in winter to make our stoves and lights efficient ventilators. We are threatened at the present time in Philadelphia with a "plumbers' law," under which are to be appointed inspectors and sub-inspectors to harass us with fine-spun regulations and arbitrary opinions.

In short, experience leads us to the view that man (indeed also the lower animals) is fitted to endure the ordinary influences of nature; that in shutting himself up in houses, factories, etc., he departs from the normal condition and suffers the penalty. While we may hesitate to accept some of the modern views of the specific nature of disease and many of the theories of its origin, we will generally allow that outdoor nature is the friend of health, and that even where disease may apparently arise from outdoor conditions, the originating cause has been in the depressed state of the system brought about by violations of the laws of air-cleanliness and air-renewal. Under these views we will dismiss our fears of "drafts" and "colds," of "night air" and "sickly weather," and gain confidence in the Hygiene of Exposure.

ADDRESS IN MENTAL DISORDERS.

By JOHN CURWEN, M.D.,
WARREN.

SOME HINTS TOWARDS THE PREVENTION OF MENTAL AND NERVOUS DISORDERS.

No fact is more firmly fixed by physiological laws than that special physical conformations, peculiarities of manner, or modes of thought which may inhere in any person, may be transmitted in full force and intensity to one or all of the children begotten by that person. The exceeding importance of a careful and thorough investigation of such conditions in their bearing on the prevention of mental and nervous disorders, gives special prominence to what Sir James Paget has called life histories of disease, by tracing back through the members of a family special conditions which may act or have acted as the causes of any peculiar acquired or inherited defect.

It is most assuredly a subject demanding the most earnest and persevering investigation by the profession, to trace out the cause of the peculiarly intractable character which mental and nervous disorders have latterly assumed, to discover, if possible, and we believe it is possible, the reason why they are so. In such investigations it is specially desirable and important to keep constantly before the mind the error into which all are so likely to fall, of confounding cause and effect, and thus nullifying the correctness of the results to be attained.

On some of the lines on which the forms of mental disorder may advance, it is proposed to attempt to trace back the peculiarities which modify or control these disorders, in the hope of obtaining a clue by which a more systematic prevention may be reached. Admitting our profound ignorance of the recondite processes of mental and nervous action, we can yet make note of these facts and changes which come before the eye of every practitioner, and a cautious collation of these, drawn from long and varied observation, may lead to more satisfactory results than now seem possible.

No one doubts the fact that physical diseases are certainly trans-

mitted from parent to child. The disease may not be actually transmitted in the form in which it was clearly developed in the parent, but a tendency, or susceptibility, or special proclivity of the organs in which the disease existed in the parent, may be transmitted, so that at a certain period, under favoring conditions, the same disease may be fully and unmistakably developed. That we cannot explain the reason does not invalidate the fact, and to endeavor to discover that reason should be our prime effort.

We know also the additional fact, familiar to every observer, that while certain members of a family will manifest unmistakable signs of the disease or special peculiarity of the parent, certain other members will escape, and this fact may be traced to the resemblance borne by these members to one or other of the parents. In certain families part of the children will be found to have not only the physical peculiarities of one parent, but the special mental idiosyncrasies of that parent, while the other members will have all the physical and mental traits of the other parent.

Are there no means by which we can trace out these peculiar family traits which lead certain members of a family at a given age to the commission of suicide? or of those who maintain a careful and temperate life up to a certain age, and then give themselves to excesses in drinking or lascivious habits? Such things are within the knowledge of all, probably within the personal observation or professional experience of many.

Certain it is that no community exists in which some such incidents may not be found in varying number, according to the age or length of settlement of that section of the country; the older the settlement the greater the likelihood of large numbers.

Very much has been written in regard to the intermarriage of those of near consanguinity in the production of diseased conditions, and it is unquestioned that if the members thus entering into alliance be of weak physical constitutions, feebler members will, as a rule, result, even as the same would result from the same relationship established between feeble members of entirely distinct families. The mere fact of intermarriage by itself does not prove anything in this relation, except on the limitations stated, for in no race has intermarriage been so close and constant as in the Hebrew, and in no one have more active mental habits or better physical conditions existed, taking the race as a race, throughout the whole period of history.

That there may be various sources of fallacy in the conduct of investigations of the character recommended, and that many statements received may be misleading, is only what may be expected

from all human testimony, tinctured as so much of it is with partiality, prejudice, and unwillingness to state all the facts of the case; but that should be no bar to investigation any more than in any other effort to trace out the effects and influences of diseased conditions, but only an incentive to the exercise of greater caution and a more thorough sifting of the facts, so as to distinguish more clearly what may be strictly fact and what may be only inference from fact.

Certain facts may be considered settled by the general observation of the profession, that tendencies to disease, and in many cases actual disease, may be transmitted from parent to child, and this tendency may be traced back through one or more generations; that peculiarities of temper, inclinations to special pursuits, anomalous mental and nervous states, singular views on given subjects, not the effect of education, but a direct result of a similar condition in one or other parent, developed before any education was begun, and other matters out of the ordinary course, which can only be referred to some disordered or abnormal condition of the parents.

There is a singular fact to be noticed in many cases of mental derangement, where the disorder appears first in one of the children and afterwards in one of the parents, the principal explanation of which would appear to be that the defective organization of the child was less able to resist the attacks of disease than that of the parent, and yields more readily to causes which in one of more robust organization would not produce such effects.

Could the history be traced out accurately, it would very probably be found that some special physical disease affected the mother during the period of gestation, which greatly impaired the healthy action of the nervous system. A strong confirmation of this fact may be found in the history of idiocy, where it has been clearly proven after very careful examination, that, where the parents, one or both, have been under the influence of intoxicating liquor at the time of conception, or the mother during the period of gestation, the children are almost sure to be defective mentally or morally, and very often both; and it has been also frequently stated that the cause of the imbecility, mental and moral, of so many of the first born children of the aristocracy of some parts of Europe could be traced to the round of dissipation which attended the first month of the married life of the parents.

To the indulgence in intoxicants is unquestionably to be traced much of the moral depravity, want of true principle, and attendant mental inability to exercise proper control, or resist certain forms of temptation, which characterize so many of the present and the

rising generation; and also the weak, irregular, and defective nervous organizations from which so many nervous disorders take their origin.

In this fact of the impaired physical health of the mother also lies the explanation of the great difference sometimes observed in certain members of a family, who seem to be constituted, mentally and morally, diversely from the other children.

Well attested cases are too frequent not to permit the explanation that some severe shock of fright or disease, or an unusual pressure of care, anxieties, and troubles, may so affect the mother as to produce lasting and serious effects on the child with which she may at that time be pregnant.

Too little attention has been given to this particular source of the production of diseased conditions, very probably from the fear that there might be too much fancy mixed in the explanation; but no one who has given attention to the subject can fail to have observed cases where the physical, mental, and moral condition of one child is so radically different from all the other children, that the condition can only be legitimately traced to some abnormal or unhealthy state of the mother.

A female, pregnant, was troubled with constant fears and forebodings, during the prevalence of an epidemic, that her husband would be brought home dead, or dying, from the city to which he went every day to attend to his business. The child at two years of age had an attack of paralysis, which left him a cripple for life, and when he grew to manhood was attacked with periodical mania. The other members of the family were healthy.

A young lady was attacked with deep melancholy from which she recovered after a course of medical treatment. Her mother subsequently became the victim of most unhappy and unfounded delusions giving great trouble and distress to the family, and it was ascertained that her mother, during the pregnancy with this daughter, suffered from mental disorder.

A lady conversing about her brother, whose mind was disturbed, stated that she could distinctly trace, in the mental and moral traits of her children, evidences of the peculiar condition in which she herself was during the pregnancy with those children.

The philosophy of this subject seems to have been impressed on the Greeks and Romans from observation, without any special theory, for it will be remembered that they were in the practice of placing before their wives, when pregnant, cheerful pictures and statuary, and bright and pleasing objects, so as to produce the most agreeable impressions, and thus give a more healthy action to the

mind, and all the feelings and emotions, and by the same means give a finer and nobler cast to the features.

A medical friend related the following, which he stated was a fact within his own knowledge: A lady, during her pregnancy, was particularly struck with the handsome appearance of a gentleman she met, and the impression was so strong that she dwelt on the subject constantly, and the child when born was found to bear a very striking resemblance to that gentleman, and there was no suspicion of any undue intimacy.

The same law is most unquestionably influential on the mental powers and on the passions and affections, as can be readily traced in almost every family in the community in the mental, moral, and physical traits of different individuals, and their resemblance to some member in the lineal or collateral branches.

It is unquestionable, that, if a more careful and systematic effort were made to follow out such investigations, a large number of cases could be found where the connection stated could be readily traced with the assistance of the mother if she were of an intelligent, observant mind. If this can be done in cases of healthy children so as to show from whom special traits have been inherited, certainly no great difficulty ought to be found in connecting the frail and imperfect organizations of many children with some previous disease, trouble, fright, or other moral cause, acting on the health of the mother.

All that is needed is a persistent effort to reach the true state of the case by such a careful collation of all the circumstances as to show beyond doubt or cavil the connection between the two conditions, and this can be done in the great majority of cases if a resolute determination is adhered to.

The comparison of a large number of cases would permit such a generalization as to establish the fixed law which governs all such cases, and when such law was once clearly established by the induction of a large number of particulars, a line of action could be laid down which could be made to govern the treatment of such cases, or at least indicate the course which could be followed.

The special application of this matter in the prevention of mental and nervous disorders should be in the effort to maintain in the most careful manner and by special effort the physical health of the mother during the period of gestation, and also to keep before her mind as much as possible such cheerful scenes and pleasant impressions of every kind that the mind may be led into bright and healthful thoughts.

Two opposite classes would require special care and management:

the wives of farmers, mechanics, and laborers who are compelled to do a large amount of household work, very often under trying circumstances, giving rise to much anxiety and worry; and that class in the cities who spend their time in a round of gayety and fashionable dissipation, totally unfitting them to have children, or to take care of them should they unfortunately have any; and many of them seem so well aware of this fact that their great study seems to be to avoid in every way what they look upon as a great evil. To impress the correct knowledge upon the minds of such people would require great effort and education of the parties by the physician, but the persistent inculcation of facts and truths would in time produce such effects in the minds of the community that each member would desire for the sake of the children to carry out such plans as the physician would dictate. It cannot be expected that definite effects could be produced in a short time, but the steady perseverance in such a course of instruction by every member of the profession would undoubtedly have the effect of changing very materially the mental, moral, and physical condition of the families embraced in the practice of those physicians who would specially exert themselves to impress the proper views on these subjects. It must be a steady, persistent adherence to a certain definite course of education, and, like all careful training patiently and thoughtfully persevered in, it must produce an effect.

The profession appear very reluctant, from notions of false delicacy towards the members of the community, to teach the true doctrines on certain subjects on which they alone have the proper information to be imparted, and to them would be accorded an attentive hearing, from the fact that what they say comes from a knowledge derived from practical experience. Much suffering would be prevented if correct views were clearly and distinctly stated on the prevalence of syphilis, and its baneful effects on the children of those who have been affected by it. This instruction is greatly needed, and no physician should hesitate to give it on every proper opportunity.

So in the matter specially under consideration, the truth can never be known until the profession will do their full duty towards the families to which each member may be called to minister, and there are always times when such instructions may be given, and will be thoughtfully considered, and such times should be carefully watched for and sedulously improved.

During infancy and early childhood the greatest care must be given to the physical health and condition, so that the child may be strengthened for that course of discipline and school education

through which all should pass, and during this period also those habits of obedience should be much more sedulously cultivated than is now done. Nothing adds so much to steadiness and composure of mind as the practice of habits of obedience, teaching that restraint and control of the temper and passions which form so large an element in the happiness or misery of the possessor; happiness if kept under control, misery if unrestrained; and no period of life is so important in this respect as that when the temper and passions first begin to be manifested, for then they are more easily brought under proper control, but if allowed to have full sway they are sure to lead the possessor into scenes and troubles which may seriously mar the happiness of life.

The unceasing activity of the first few years of life needs to be regulated not restrained, for the reason that that activity is the natural condition of that period, and all efforts to restrain and prevent it only make the child more uncomfortable, and cause a reaction on the mind and passions which is usually attended with bad results.

Too much anxiety is exhibited on the part of many parents to send their children to school at an early age, to relieve themselves of the necessary care and attention to them. This mode of checking the restless activity of childhood is attended generally with unpleasant results. The child feels the irksomeness of the confinement, and is restless and unable to fix its mind on its lessons, and not learning them is too apt to be kept in at recess, which only adds to the trouble by increasing the fretfulness and peevishness, and in this way preventing the child from fixing its thoughts and attention on the lessons. Better far let the child run around all the day than impose this kind of restraint, which has the double effect of increasing the irritability and the dislike to the lessons to be learned.

It may be insisted that the present method of object teaching for certain classes of young children may obviate many of the difficulties complained of, but even that kind of teaching is a strain on the mind and nervous system which is unfavorable to the proper development of the child's mind. The minds of children are very receptive of impressions, and those impressions should be of a character to give tone and strength, and not weaken.

A more symmetrical development will be attained by giving all the physical exercise a child may require with such teaching as the parent can give from time to time. Too constant application at an early age is apt to strain the mental powers, and in this way retard the development.

Fortunately precocious children are rare, for they never reach

any prominence, and scarcely mediocrity in middle life, if they live to reach that period. The misfortune of the times is that parents do not realize the responsibility under which they are placed for the careful training of their children. They may not have received it themselves, and consequently are, as a rule, not competent to exercise it in behalf of their children. Here, again, it is in the power of the physician to give lessons which will inure to the benefit of parents and children by showing the parents their true duty in training their children in habits of obedience, and exercising in their own persons that control of their temper and restraint on their passions which they should impress on the children.

As children are such apt imitators, and are always more ready to take up with the bad in preference to the good, example will do much more in their training than precept. The steady, continuous influence of a good example will do more than precept upon precept to impress upon the mind of the child the important lesson that true happiness is always to be secured more certainly in the exercise of self-control and diligent effort to avoid all outbursts of passion than in any other way.

Education, in the true meaning of the word, is the drawing out of the powers of the mind and the moral feelings and affections, and giving them the true direction, and that is not education which fails to secure that object. "Education is something more than the communication of knowledge. It includes the training of the sensibilities, which are the springs of action, and the forming and fixing of character. To this the knowledge of the feelings is as requisite as the knowledge of the intellect, and it is attained by a similar method. Those who influence the character and conduct of their fellowmen by public discourse or private conversation, by the persuasion of words or the magic power of look or gesture, those who seduce to evil or win to good, are, in the appropriate sense of the word, educators, as truly and often with greater potency than the teacher in the school or the professor from his chair."—(N. Porter.)

It must always be kept in remembrance that the mind has three faculties or powers—the intellect, the sensibility, and the will—or states of knowledge, states of feeling, and states of will.

A true and healthful education consists in such an assiduous cultivation of each of these states that one shall not preponderate over the other. They do not require exactly the same kind of training, but the very difference involved adds to the importance of such direction of each as will tend to give a well-balanced and symmetrically acting mind.

The careful management in early life of two of these states demands attention in this connection, as intimately associated with the subject under consideration. The impressions received through the senses are those which first have a decided influence on the mind. Including under the head of the states of feeling all the emotions, passions, and affections, it will readily be seen what importance should be attached to the thorough discipline of these during the early years, and, in fact, throughout the whole life of the individual. All are under the dominion of these states more completely than under the intellect or the will, and by these the conduct of all is more or less directed, and it is all the more necessary on this account that they should be trained and disciplined carefully and properly.

The greater part of the trials and troubles of life come to us through these states, as well as our greatest joys and happiness. From the cultivation of the benevolent feelings spring all the pleasures of social intercourse, kindly sympathy, and good-will, while from the indulgence of the malevolent feelings come all those disorders and temptations which lead to misery and distress, and from these also comes so much of the mental disorder prevalent in the community. The sway which all these maintain in the individual may readily be discovered, not only in the manner of life of the different members of the community, but also in the fact that these manifest their predominance among the first symptoms of every form of mental disorder, and they maintain their assumed dominion all through the course. From this fact it will readily be seen that it is of vital importance that in the education of early and middle life proper direction should be given to them by the most careful and intelligent training, that they may not assert that power over the other states which will be detrimental to the mental health. The states of will also require especial care, because they are to be regarded as the directors of the other states. The terms weak, will, and strong will prove in what light they are regarded, and, as in all well-regulated machinery there must be some governing and regulating power which will keep the others in proper order, to this position the will is generally assigned. If it is weak and unable to direct, the states of feeling will assert and maintain their supremacy, while, if it is strong, these will be kept in proper order and subjection, and the man will be better qualified for the part which he may be called upon to sustain in life. Then, also, the will must be rightly directed, and be kept in that subordination that it will not overrule all the other states.

The intellect should be gradually developed by that course of education which will give force and energy to all its powers.

From this statement will be readily seen the extreme importance of a thorough, careful, and healthful training of the mental powers, so that neither of them shall assert and maintain a decided preponderance over the others, but that all should be so regulated as to lead to a symmetrical action. Unfortunately under present modes too little effort is made to secure this symmetry, the object of education seeming to be in too great measure to develop the intellectual powers while the states of feeling and will are almost entirely neglected.

A full description of this branch of the subject, important as it is in the prevention of mental and nervous disorders, would require much more time than can be given to it in an address limited as this is, and with a quotation from a learned writer (Prof. Tayler Lewis) showing the immense interest involved in the maintenance of the proper symmetry between all the powers and the depths to which the subject reaches and the issues involved, I pass to other branches of the subject.

"The heart, whatever it embraces of intellectual or moral, or of both combined, is that part of the human spiritual constitution which is most interior, most hidden, not merely from other souls, but from the man himself whose heart it is. It is the region acting, stirring, thinking, feeling, willing, yet below consciousness. It admits not of being characterized by any precise psychological language; it will not be confined by psychological classification. It is not the reason, it is not the affections, or the appetites, or the will, or the susceptibilities, or the conscience. It is not any of these, though more or less including them all, but the deep seat of moral life and action, unknown or unknowable to man, known only to God. When we say unknowable, we mean by any direct sense, knowledge, or intuition. In this its interior seat, and its profound action therein, we neither see it, nor think it, nor even feel it. We are conscious when it acts, and of its action as a fact. We know when it has moved, or been moved, by that which is thrown up. We see what comes out of it, and from this we are not only assured of its existence as a powerful agent, but its motions, as acts and facts, become the subjects of outward knowledge.

"Not only the springs of this action, but also the manner of its acting, are below our direct knowledge. In this interior subconscious department of the soul there is not merely a moving, a throbbing, a general life action, but also a direction of movement and act. There is a combining of affinities, a repulsion of anti-

pathies. There is a loving and a hating, a choosing and a refusing, a willing and an unwilling, a self-satisfaction and a self-excusing, all real, yet unknown to us in their primal and immediate agency. They are ourselves, yea, our deepest selfhood, though shut out from our acquaintance and sometimes utterly disowned. There are motives moving there, real, powerful, controlling motives, some of them of giant strength, that we recognize not, that we suspect not, and whose possibility even, if it were charged upon us, we would most indignantly, and, it may be, most sincerely deny. There is a war going on between these motives, some are conquering others, but we know nothing about it, we know not which is victor until it manifests itself by an irruption that disturbs the upper self, and that is known to the objective consciousness. We know it by the progress we have made. There is something, too, in after-life and after-experience that clears our vision, and we look back and see in memory's light what we saw not when the movement was actually taking place. We have gained a height that enables us to look over the obstacles that then intervened, and we see what 'our heart was doing in the dark.'

"But we would press it farther still. There is an intellectual as well as an emotional action; yet it may be said that there is even a logical movement going on down there. It is a chamber of thought as well as of inquiry. There has been a proposing, an intending, an estimating, a concluding, a shaping of good reasons to cover bad motives, a dressing up of the thoughts before we permit them to see the light and appear openly to ourselves. There are not only tastes and instincts there, and tendencies and dispositions, but even a knowledge keen and active, knowing yet unknown. There has been a reasoning going on there, we know this too, from the mental and moral progress we have made. We have been walking in our sleep, and our spiritual somnambulism has had its processes as regular, as steady, as unerring—yea, sometimes even more unerring than our waking, conscious, skilfully constructed syllogisms. There must be such combining of powers, and such analytic processes, of which the upper thoughts present no specific indications, and which are only known to the outer man in the generic direction they give the conscious life. These hidden powers cannot be blanks having no tendency to some thoughts and things, or to some directions, more than to others. They cannot be blind, or work without their patterns, their law or laws, and these directions and these laws must have working in them, some kind of shaping, guiding intelligence. We may call it instinct, nature, governing principle, what we please, it cannot change the fact or lessen the mystery. The Bible calls it

the heart, the 'deep heart,' the 'dark or hardened heart,' the 'untraceable heart' that 'God alone can know,' the 'hidden man of the heart,' the deceitful heart whence come forth the thoughts, the images, the purposes, all having their forms, their structures, their ethical relations, their moral character given to them in the varied workings of that hidden power in which they had their conception and their birth."

The mind is so conditioned and affected by the state of the body that in order to its proper healthful action the functions of the different organs should be normally performed. It is true, there are exceptional cases when the mind is very active in a weak and disordered body, but no one would infer from these that they were to be taken as guides for the majority. Special attention should be given in all youth to insure, so far as it can be done, regular normal action of all the organs and functions of the economy.

Ample and regular nutrition is essential to the proper growth and development of the body, and in growing children this must be secured if health and strength are to be maintained. The incessant activity of childhood and youth rapidly exhausts the nervous power, unless it is constantly renewed by such nutrition as will afford abundant material for the due and regular maintenance of the needed supply.

If every act of body and mind causes a certain degree of waste of tissue, and at the same time loss of nervous force, the plain and distinct teaching is, that, to maintain health, that waste must be fully and adequately repaired by such nutrition as will afford the most readily assimilated material, and at the same time furnish what is needed for the proper growth of the body. These two processes of repair and construction must go on at the same time, and while the same material is applicable for both purposes, it must be ample for those purposes, and at the same time of a character most readily to answer the requirements of each case.

Everything which will in any way interfere with the due and regular performance of the functions of nutrition must be sedulously avoided, and with this object in view, plain substantial food should be given, and all those articles which are more pleasing to the taste than beneficial to nutrition, should be proscribed. Unless the plain dictates of prudence and common sense in these matters are observed, it will soon be evident that the nervous system will begin to show by its irregular action, that it has not that quality and quantity of material which is requisite for the performance of its normal action. A greater proportion of nervous disorders are traceable to this cause than people are willing to admit, and the

relief to those disorders by a return to stricter, plainer, and more nutritious regimen will soon demonstrate the truth of the position taken, by the regular and prompt disappearance of the unhealthy action. No fixed rule as to the character of the diet to be taken can be laid down, owing to the peculiar idiosyncrasies of certain persons in regard to articles of food, but this may be definitely stated, that it should contain such a mixture of vegetable and animal substances as to furnish those principles which enter into the proper constitution of the different tissues.

Next in importance to nutrition must be ranked sleep, to recruit the exhausted powers, and enable the system to regain its natural tone and vigor. It would be difficult to name any one thing which has a greater influence in undermining the health and deteriorating the different functions of the economy, than loss of sleep. The demands of the system in this regard should be fully met, and it is not too much to say, that children and youth should be allowed to have all the sleep they seem inclined to take, in order to recover from the effect on the nervous system of the constant activity.

This truth cannot be too strongly impressed on the minds of all classes and all ages, from youth to mature years, that nothing is so directly instrumental in impairing the vigor of the nervous system as continued loss of sleep. Men may boast that they can do a large amount of work with little sleep, but it cannot be continued for any length of time, without sensible effect on some one or more of the functions.

There is a regularity in all the operations of the economy which must be rigidly observed, in order to secure the continuance of good health and the normal performance of the mental powers.

Those who do the best work, and the largest amount of it, are those who carefully observe those requirements which insist by force of an inexorable law, unwritten it is true, but none the less of the most positive enactment, that regularity shall characterize all the course of life, regularity in eating, regularity in work, regularity in recreation and relaxation, and regularity in sleep.

Childhood and youth will require from ten to twelve hours' sleep in each twenty-four hours, mature age, seven to nine hours, and old age, all that can be obtained. The character of the work to be done will also, in a measure, regulate the time to be devoted to that work.

Active mental labor for childhood should only last an hour at a time, because it has been found that the more actively the mind may be employed on any subject, the more rapid the nervous exhaustion.

If men of mature years can only give from four to eight hours

a day to mental work, the time depending on its character and the intensity of the application, it cannot be expected that in the slowly developing brains of children work can be continued for any length of time without injury to the brain itself, or incurring the risk of an exhaustion which will do serious injury. This fact is constantly impressed on the minds of medical men by the effects on the mental and physical health perceptible in so large a number of children attending certain classes of schools.

The effort appears to be to go over the greatest amount of ground without regard to the character of the crop to be obtained, just as if a farmer should endeavor to obtain large crops by planting a large amount of ground with a light amount of seed, in place of careful, thorough planting and cultivation of a smaller tract, and bestowing upon it that diligent attention which can be given to a small plot but not to a large one.

A definite amount of lessons, small it may be, learned fully and thoroughly, on any subject, will be of infinitely more value and lasting advantage in the development of the mind and in the acquisition of knowledge than skimming over a large number of subjects.

What is needed is the positive acquisition of a certain amount of knowledge on any given subject, so that it can be made available for the practical duties and objects of after life, that which will be so impressed on the mind that it will be ready for use when required, and not a mere act of memory retained for a few days and then forgotten.

The scholar should be so taught that the lesson may be understood in all its details, and he should be able to explain it fully before passing to some other point. This is true mental discipline. It is far better to understand clearly one page of a book than to go over ten or twelve pages in such a manner that in a few days the whole will only be a confused mist in the mind, in place of a clear vision of the objects, clean cut and sharply defined.

To the questions, "Whom shall he teach knowledge? and Whom shall he make to understand doctrine?" no better answer can be given as to the method of imparting knowledge than that which has been given in Holy Writ: "Precept must be upon precept, precept upon precept; line upon line, line upon line; here a little, and there a little."

Observation has clearly shown that those who make the greatest apparent progress in early life are not those who hold out to the end, for the exertion required tends gradually, and sometimes speedily, to exhaust the nervous power, while those who are more slow, and take in knowledge more gradually, and with greater labor

and effort, are more sure to retain and better able to make that knowledge available for any purpose, or in any station in life in which they may move. In this connection, also, it may be remarked that the different capacities and proclivities, or bent of mind of men, teach this very important lesson, that the same rigid rule cannot be laid down for the training of all, but must have a degree of flexibility to adapt it to those ever-varying habits or bents of mind which lead one to one pursuit, another to another, and so on through the long list of trades and professions.

A careful attention to this point would prevent an immense amount of labor and vexation to the teacher and the taught by avoiding those things for which the scholar has no aptitude, and allowing the mind to be trained in those branches towards which the aptitude really inherent would lead.

Many a youth has broken down mentally in the effort to learn that which his mind could not comprehend by any explanation or repetition; whereas, if he had been allowed to follow the inclination to some particular trade, or occupation, for which he had a special aptitude, he might have been a useful and respected member of the community. It must not, however, be inferred from what has been said, that a careful, systematic, thorough training in different kinds of knowledge is not essential to success in every department of life, for it must be held as an undisputed truth, that the more thoroughly the mental powers are trained in proper subordination to the principles advanced, the more successful will the man be in whatever calling he may choose; but the objection lies to the rigid application of a rule which does not, while it should, admit of such variety in the application as will best adapt it to the almost unending variations in the mental capacities of those who come under its influence. The haste to learn all that may be taught, is attended with as great danger as the haste to be rich, though in a different form, for while one leads to actions and conduct which reflect on honesty and integrity, the other interferes with the proper regular development of the mental powers.

Gradual development is the rule which governs in all the departments of mental and moral as well as in physical nature, and this law cannot be ignored in the one any more than in the other.

The powers of the mind must be trained in proper subordination to the growth of the physical system, and any excess in the training of the one will be found to act injuriously on both, though the physical reacts more readily from the strain than the mental. How many in the eager desire to obtain the highest honors of their class

will labor and strive to the neglect of their health, and gaining the coveted prize suffer during the remainder of their days from nervous exhaustion impairing both mind and body.

Some under careful judicious treatment may regain their physical health, but the elasticity and energy of mind rarely are fully recovered.

The development of mind must be not only gradual but symmetrical in each of the states which form a well-balanced mind, and this symmetry is seriously interfered with by the class of reading so generally provided for the young at this time, arousing the emotions and passions and keeping them in an unusual unnatural state of excitement, and thus interfering with the more strictly intellectual powers, since a steady continuance of such excitement almost invariably takes away the power of fixed attention and consecutive thought in the calm and regular pursuit of genuine knowledge.

The will is also to a great degree dominated by the states of feelings, and the individual becomes the prey of emotion and passion in place of calm reason and sober judgment. These persons are unfitted by such a state for the duties and reverses of life, and they become victims of morbid fears, and with a feeble will, more feeble intellectual power to direct and guide them, and very little moral principle, they too often yield to the power of their emotions and passions, and cut short life by some summary process which may have been suggested by the course of reading to which they have been addicted. Herein may be found an explanation of the homicidal and suicidal disposition so prevalent in these times.

Another effect of such indulgence of the passions may be found in the practice of secret habits which tend to impair the integrity of the nervous system. Other causes connected with the training of the young will also tend to the production and continuance of the same habits, and while not believing in the statement that a large proportion of mental disorders are attributable to these habits, there is evidence that such a condition of the nervous system is produced as seriously to interfere with the healthy action of the intellect and the will, placing the individual in that weak and vacillating condition which unfits for steady regular work of either physical or mental character, but stopping short of actual derangement of mind.

In the district lying between the limits of sanity on one side and of insanity on the other, large numbers will be found in that weak, unsettled condition which may fairly be attributed to the different

causes specified, sometimes reaching up very nearly to one side and then to the other, but only occasionally crossing the dividing line into the unsettled and disturbed region, while furnishing that large class of cases of nervous exhaustion and depression which cause so much annoyance to the regular practitioner, but give to the irregular practitioner all his money and all that limitless assurance and confidence which form his chief stock in trade.

Without entering into a discussion of the effects of tobacco in the adult, there can be no question of its very injurious influence on the young. Observation in a large field has clearly and definitely shown that in youth, who have been advancing steadily in their studies, and gaining that clear and comprehensive grasp which is essential to ultimate success, the use of tobacco has had the effect of retarding that advance, and even of preventing their maintenance of the rank they had already attained. There must also be a certain degree of noxious influence on the physical system, for those who commence its use at an early age experience a retardation of growth, and the insidious character of the habit leading on to the use of stronger varieties, as the system becomes gradually accustomed to it, must certainly have, to a greater or less extent, a detrimental influence on the proper performance of the functions of different organs, and notably on the nervous system.

Without entering into any discussion of the laws which regulate habits, it must be conceded that there is a large class which have a direct action on the mind, or form part of that mental action. The whole subject in connection with the topic under discussion is full of interest and profit, from the influence to a greater or less extent on the character of the mind, and the bearing on its integrity.

Bodily habits have an influence by the effect on the functions of the different organs, by strengthening those functions, or by retarding or interfering with them, and thus aiding in destroying the symmetrical action.

Mental habits have also a very decided influence, for either good or evil, in accordance with the class to which they may belong, one by giving tone and vigor to the mental powers, and the other, including the appetites, passions, and emotions, if unduly and irregularly stimulated and exercised, having a depressing and deteriorating influence, so as finally to lead to decidedly irregular and abnormal action.

Though bearing directly on the prevention of mental and nervous disorders in the most positive and radical manner, time will not allow a statement of the intimate relations existing between these

habits and mental integrity; and with this simple statement, the subject must be left to the serious and thoughtful attention and study of every member of the profession, in the earnest hope that each will place himself "in the way of being held, or holding himself," to the inculcation and cultivation in all who come within his influence of those habits which are good and lead to beneficial ends, and to the repression, and, so far as possible, the obliteration of those which have an evil tendency, and thus aid to that degree in the prevention of mental and nervous disorders.

SOME OPHTHALMOLOGICAL OBSERVATIONS DURING TEN YEARS' SERVICE (1872–1882) IN WILLS EYE HOSPITAL.

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In March, 1872, the Board of City Trusts of the City of Philadelphia increased the Surgical Staff of the Wills Eye Hospital, so as to extend the usefulness of the institution in having daily clinics, and more medical officers to attend the augmented number of patients applying for relief. At this time I was elected one of the attending surgeons, and entered upon my duties the 15th day of the following month (April). The term of duty of the surgeons, which was formerly quarterly, was changed by the staff to that of alternate daily service; one-half of the number of surgeons on one day, and the other half on the next day, and so on the year through. Accordingly, therefore, to the selection, my clinic days have been Tuesday, Thursday, and Saturday of each week. At first the individual clinics were rather small, as the patients received were divided among the five attending surgeons; but the increase of the patients has been so great, and with a reduction of the staff to four on each day, the clinics have become quite large, so that, with the old and new patients, from one to two hundred persons are treated daily.

During my ten years' service, from April, 1872, to April, 1882, I have had attending my clinic 5243 patients, classified as follows: Affections of the lids, 390; of the lachrymal apparatus, 164; muscular and nervous affections, 202; anomalies of refraction and accommodation, 913; diseases of the conjunctiva, 1211; of the cornea and sclerotica, 1146; of the iris, ciliary body, and choroid, 454; of the retina and optic nerve, 211; of the crystalline lens, 330; of the vitreous body, 57; of the eyeball, orbit, etc., 165. The number of operations performed during the same period was 1282, among which were 148 extractions of cataract; 36 discissions of soft cataract, with four suctions by Bowman's pump; 164 iridectomies; 5 iridotomies; 11 Passavant's operation for posterior synechia; 1 of

Streatfeild's for same trouble; 92 tenotomies of recti muscles; 106 operations on the lachrymal apparatus; 200 operations on the lids; 87 enucleations of the eyeball; 3 optico-ciliary section; 4 drainage after de Wecker; and 422 sundry operations on the cornea, conjunctiva, lids, etc.

In Affections of the Lids, all the general forms of disease were more or less met with. In the treatment of *tarsal inflammation* [blepharitis] much benefit was found in the von Graefe method of removing the crusts from the edges of the lids, and touching the excoriations with the mitigated stick or a 10-grain solution of nitrate of silver, and applying at night an ointment of hydrargyrum oxidatum flavum. In cases of a very thickened condition of the tissue, de Wecker's pomade antiblepharitique was used with very good effect. The odor of the litharge in the linseed oil, however, is so very unpleasant and penetrating, that I found it necessary to try some modification or substitute; and, with the assistance of Mr. L. E. Sayre, pharmacist of this city, I have made an ointment equally as efficatious and far more agreeable than that of de Wecker, which I call pomade antiblepharitique modified; the formula for which is—

Oleo-palmitate of lead	20 parts.
Almond oil	10 "
Simple cerate	5 "
Balsam of Peru	1 "
Liquid tar	½ "

Dissolve the oleo-palmitate of lead in the almond oil with a gentle heat, after which add the cerate and let it dissolve, then add the balsam of Peru and picis liquida, stirring well all the time. When well mixed strain through fine muslin. We have here an ointment, or pomade, as de Wecker calls it, that remains good and of the proper consistency for a very long time, the odor of which is very pleasant.

In using it, a little is spread on a small piece of cloth or kid and bound over the lids at night. In the morning it may be well washed off with warm water. This treatment should be continued nightly until the swelling and inflammation of the edges of the lids have passed away.

In most, if not all, of the cases of this affection met with, anomalies of refraction were found, the correction of which was necessary to succeed in a permanent cure.

In three very severe cases of *entropion*, where the cartilages were completely curved in on themselves in both upper and lower lids,

the cartilages were removed after the method of Pope, with splendid results; one case of which will be described as follows:—

Mrs. B., æt. 43, came to my clinic December 3, 1872. The lids were curled in on themselves so that the cartilages were almost doubled. It was with difficulty that the edges could be drawn out. The ciliæ were pretty well preserved. The cornea of each eye was covered by a vascular pannus. December 14th, admitted for operation: the patient being thoroughly under the influence of ether, an incision was made along the free margin of the lid between the cartilage and the orbicularis muscle, close on, in reality almost shaving the cartilage, extending back, up along the cartilage to its attachment with the levator muscle. The cartilage being thus well exposed was removed by grasping it with rat-tooth forceps and snipping it off in pieces with the scissors. In this way the upper cartilages were all removed excepting a small line along the upper rim just at its point of muscular attachment. This remaining rim was dissected up for some distance from the conjunctiva. The posterior flap came well down, and, to keep it in its proper position with the anterior one, the two ends of a silk suture were passed through both flaps of the lid from the inner to the outer surface, and tied together. No sutures were applied to the edges of the wound, they being allowed to adhere and cicatrize naturally; which occurred by first intention. In making the incision along the edge of the lower lid it was carried between the cartilage and conjunctiva, and the whole of the cartilage removed. Here three sutures were applied to the edges of the wound. After the operation the ciliæ of both lids stood in their proper positions. The second day all sutures were removed. The lids kept their positions perfectly, and the corneæ cleared up remarkably. On being discharged she went home alone, fifty miles into the country, being the first time for over a year that she had gone out without assistance.

The incisions in the upper lids were made different from Dr. Pope's, being anterior to the cartilage, and not posterior between the cartilage and conjunctiva as recommended by him. This was done for more convenience and ease in cutting the flaps, and for greater facility in removing the cartilages. Great care must be taken in removing the cartilage that the conjunctiva be not cut through, because cicatrices therein will cause more shrinkage and contraction. The removal of the cartilage from the lids in this case was imperatively necessary, as the curvatures were so great that the operations recommended by others at that time for the removal of such defects would have been of no effect.

Ectropium was operated on by different methods according to

the cases and defect. One, however, was of such interest as to require description on account of the use of cicatricial tissue in transplantation.

James L., æt. 26; while sinking an oil well, August 3, 1873, the liquid took fire suddenly, no doubt from a spark, and burned him severely on the head, face, arms, back, and thighs. When admitted to the hospital, Sept. 8, 1874, he was rather a hideous-looking being; the left side of the face was all drawn up by stiff cicatricial skin, the forehead covered with thin, tender, soft, parchment-like tissue, very brittle, and containing parts still in process of healing. The skin over the face and forehead was perfectly tight, not in the least movable or flexible. The upper lids were everted, and the edges attached up along the line of the brow. The lower lids were also everted and drawn down. Fearing the use of cicatricial tissue, I tried to make reparation in the lids by transplanting skin from the arms (à la Taliacotius and C. von Graefe), as well as by grafting small pieces of cuticle into the spaces left after dissecting the lids from their abnormal attachments, and placing them in their proper positions. All attempts however, failed, and nothing was left but to endeavor to get flaps from the adjoining parts after they had been properly treated and manipulated, so as to become pliable as well as in a healthier condition of tissue. For this purpose the skin was well rubbed with pure neat's-foot oil (oleum bubulum) for one year, at the same time massage was made to produce pliancy. After this time the skin became as soft and delicate as an infant's, and the transplantations for the upper lids were taken from the temple and forehead, and for the lower lids from along down the nose, with very creditable success. The flaps healed nicely by first intention, and with no more shrinkage than in normal healthy skin. There was some slight eversion remaining, but he was able to close the lids well, and in sleep to cover the corneæ, and protect them from external influences.

The local application of *ethylate of sodium* was found very serviceable in removing small nævi materni occurring on and around the lids.

Epithelioma when small was much benefited and also removed by the topical use of powdered chlorate of potash. My attention was first called to the treatment of such cases with this salt in a paper, "Etude sur la traitement du cancroid par le chlorate de potasse par d'Euthybouille," May, 1877, and again by an article on Traitement de l'epitheliome par le chlorate de potasse par Leveque; both of which impressed me with the idea to try it, and I have found it successful, saving the use of the knife in many cases.

In the treatment of several forms of *simple conjunctivitis*, weak solutions of astringents instilled frequently in the eye were found more efficient than the older methods of stronger solutions used once or twice daily. In purulent and gonorrhœal forms, nothing was so successful as the steady cleansing the eye from all secretion every half hour, and the alternating instillation of a saturated solution of boric acid, and a weak solution of nitrate of silver (gr. $\frac{1}{2}$ to j : $\bar{3}$j). At the same time iced cloths were laid over the eye when the cornea was not attacked by the disease, but when such was the case, the compress bandage well and firmly applied between the instillations was always found most beneficial.

Carbolic acid and thymol were tried and found too irritant to the eye. Before the introduction of the antiseptic use of boric acid, dependence was placed on cleanliness and the astringents, and at times in very strong solutions, but without the favorable success as now obtained.

Membranous conjunctivitis is a very rare form of disease in this country, but four cases were met with in the clinic and successfully treated by a collyrium of chlorate of potash, hot applications, and quinine and iron internally.

Granular lids were invariably treated at first according to the method of v. Graefe, by touching any and all prominent granulations gently with the mitigated stick to break them down, after which tannin, alum, zinc, and hydrastis came well in place. In later days the yellow oxide of mercury, as recommended by Dr. Seely, has been found useful; but only after the granulations have been reduced by the use of the mitigated stick, or squeezed out and wiped off. This pressing or squeezing out of the granulations I have found very beneficial in thickened tissue and apparent loss of vitality. It is easily done by pushing the finger, nail outward, well under the turned-up lid, and then pressing with the finger of the other hand on the exposed conjunctiva. A little yellowish-white, sago-like kernel springs out, leaving the whole tissue much softer. Then I find the yellow oxide ointment applied at night does well, and more especially when assisted in the morning by the application of the nascent silver solution formed fresh at time of using from a mixture of a solution of nitrate of silver, and a solution of iodide of potash, and applied with a hair pencil on the exposed conjunctiva. Copper crystal, applied topically, I never use any more, for in all of my experience, abroad as well as at home, I have never seen a case of granular lids cured by its use. It is very painful to the eye, and injurious to the other and still healthy parts.

Conjunctiva, *Fatty Tumor of.*—As fatty tumors of the conjunctiva are of rather rare occurrence, I present the following as one of great interest on account of its being of an isolated form, and not an extension from the orbit:—

Aug. 8, 1872. Mr. Thos. P., æt. 46, came with the history that something had been growing for some time in his right eye, and it now annoyed him very much; not from pain, but a constant catching of the edge of the lid on it in winking and closing the lids. On examination there was a smooth, yellow, lobulated, elastic tumor springing from the conjunctiva on the upper and inner side of the ball between the superior and internal recti muscles, and about 3 mm. back from the corner. It was movable, with a fatty feel, and the size of a small hazel-nut. It was only attached to the bulbar conjunctiva, as it could be drawn up away from the sclerotica. The patient remarked he had for many years noticed a little yellow spot and thickening there, but had not seen any increase in the size until the past year. I excised it the same day, and in doing so I made an elliptical incision of the conjunctiva so as to bring it together with sutures to cover the defect caused by the removal of so large a piece in taking away the tumor.

An examination of the growth afterwards showed a purely fatty tumor with a few fibroid tissues running across and through it.

A Case of Multitudinous Recurring Warts on the Conjunctiva.—Aug. 9, 1877. William Miller, æt. 3, came with a large wart on the conjunctiva of the left lower lid, and the following history: When three months old his mother noticed a little point of prominence or growth as large as an ordinary pin's head on the conjunctiva of the lower lid just inside of the edge, and near the punctum lacrymale. It appeared to give no trouble nor increase, until the past few months it took upon itself growth, and has grown so as now to protrude out of the lid. After etherizing the boy, I found it attached by a small thin pedicle like a polypus. It was cut off with the scissors. No hemorrhage in the least.

March 9, 1878. Returned with quite a number of good-sized warts growing on the conjunctiva of both upper and lower lids, and one very large one from the inner canthus. Some of the larger ones were excised.

July 2. To-day the margins of both lids entirely covered with these growths of a warty, fringed character. The one in the inner canthus returned, and much larger. Conjunctiva much congested, and a muco-purulent discharge. An astringent wash ordered.

July 8. Vegetations excised as much as possible and touched with nitrate of silver.

Aug. 27. Vegetations recurring and increased in numbers multitudinously.

Sept. 14. Still increasing.

Oct. 1. Much increased and enlarged; great tendency to bleed on being touched. Ordered acid. pyrolig. ℥ss; ammon. carb. q. s. ad saturat., applied with a brush.

Nov. 15. No better; the eye a perfect sight and curiosity with the hundreds of little warts growing from the conjunctiva and forcing their way out between the lids. Applied glacial carbolic acid to each as well as possible.

Dec. 17. Marked improvement in both numbers and size. The glacial carbolic acid again applied.

Jan. 1, 1879. Entirely cured; after the last cauterization with the carbolic acid, all the growths became reduced, absorbed, and passed away, leaving the conjunctiva perfectly free and healthy.

Double Dermoid Tumor of the Conjunctiva and Cornea.—On May 29, 1875, Lucy P., æt. 8, was presented at my clinic with two good-sized growths on the sclero-corneal edge of the left eye. One was a little below the central horizontal line of the cornea at the external side, at the limbus conjunctivæ, of the size of a small pea, but somewhat pear-shaped, and extending over the cornea and sclerotica. The other was about 5 mm. above on the limbus, and of nearly the same size and shape. They were of a pale yellowish color, and raised about 3 mm. above the level of the cornea. The history given by the child's grandmother was, that ever since the birth of the child something had been noticed on the eye, but did not appear to increase in size until the past three months. They now seemed to trouble her, and for this reason she seeks relief. Throughout

Fig. 1.

the bulbar conjunctiva on the outer side, were to be seen some enlarged vessels, which extended to the tumors.

As excision is the only remedy, the operation was performed under ether. Care was taken in their removal, as both were found extending deeply into the structure of the cornea. The eye healed well and promptly, and there has been no return up to this date, March, 1883, the child having returned for correction of hypermetropia at this time.

Cornea. *Keratitis Bullosa.*—Of this very rare form of corneal affection six cases were seen, as follows:—

Jan. 2, 1878. Wm. Broomhead, æt. 59.

April 6. Emma Holland, æt. 47.

July 25. H. A. Lane, æt. 39.

April 3, 1879. A. Mathis, æt. 42.

May 3. Michael Shields, æt. 25.

April 25, 1882. Thos. Maher, æt. 37.

This form of disease is characterized by a more or less parenchymatous infiltration in the cornea, and under considerable irritation and pain, the formation of a loose, flabby vesicle filled with a clear water-like liquid. This vesicle is formed by the raising up of not only the epithelium, but of the anterior elastic lamina of the cornea. The fluid in the vesicle can be moved around by the finger or edge of the lid, and any movement creates exquisite pain. It is most likely to form on eyes that have been lost from glaucoma and sympathetic ophthalmia, although it has been observed in eyes unaffected by any other trouble. In the cases above mentioned, one was an old blind glaucomatous eye, two on eyes lost by sympathetic affection, and three on comparatively good eyes, which cleared up perfectly on recovery.

In all the cases the vesicles were grasped with the forceps and torn off, and in the eyes of Holland, Lane, and Shields, atropia was instilled and compress bandage applied, while in the other three eserine was instilled before putting on the bandage. All did well except that of Thos. Maher, for which, nothing relieved it of the pain, and new vesicles continued to form from the deeper tissue as the old were torn off; and as the eye was blind it was enucleated as the only real remedy to give him permanent relief.

Another rare form of affection of the cornea, *phosphatic degeneration of the external layers*, presented itself in David Miller, æt. 53, Feb. 25, 1873. There was great sensitiveness to light; any movement of the ball or lids created great pain. There was no inflammation of the conjunctiva nor peri-corneal injection present, but a mixed translucent and opaque infiltration was seen running in a horizontal line across the centre of the cornea from inner to outer edge, and completely covering the pupil. The opacity was cone-shaped, with the base at the inner edge and apex at the outer one. On the upper edge or line, just over the upper border of the pupil, there was a point slightly raised and of a shining crystalline appearance.

The history given was that the vision had been getting dim for some time, but the photophobia and scratching pain on movement

of the ball or lids, had come on only a few weeks previously to this date. He has suffered much from rheumatism in the hips and back at times, otherwise healthy. He had been infected with syphilis some twelve or fifteen years ago.

To remove the scratching feeling, I lifted the crystalline point off with a needle, which gave instant relief. Placing this under the microscope, it showed itself as a collection of beautifully formed small transparent and semi-transparent crystals 1 mm. long by 0.8 mm. wide.

Aug. 14, 1873. A new deposit of crystals has begun to form in the same place from which the above-mentioned one was removed.

Sept. 2. It has increased to about the size of the previous one, and I again determined to remove it, so as to relieve his pain, and at the same time to make a chemical as well as microscopical examination to ascertain its composition. On account of the very great sensitiveness of the eye, the patient was etherized. The crystals were delicately lifted off; after which the diffused translucent infiltration in the cornea was examined and found to be in thin broad plates just under the epithelium, which would scale off. The whole was carefully removed. By chemical examination it was found to contain phosphate and carbonate of lime. The larger and thicker deposit, under the microscope, was like the first one, a collection of small transparent and semi-transparent crystals 1 mm. long by 0.5 mm. wide.

Sulphuric acid was given internally, and the cornea touched daily with dilute acetic acid. Under this treatment the eye improved, the cornea cleared and became nearly transparent over the pupillary region. The eye is not sensitive to light, and movements can be made without distress. This continued so until March 1, 1874, when the scratching feeling again returned. A new plate of crystals is forming on the lower line of the pupil.

April 7, 1874. Removed the new formation and placed it under the microscope, when it was found to be the same as the previous ones above described.

January, 1883. He was in my clinic for glasses. No new deposit since 1874. Cornea slightly hazy.

The only case I know of, of this nature, is mentioned by Bowman in his lectures, of one in which he removed from under the epithelium of the cornea a deposit of a salt of phosphate and carbonate of lime, which had formed in the course of several years without any inflammatory action.

Peculiar Infiltration of Cornea.—March 4, 1873. Peter K. æt 44, came into the clinic with an opacity of the cornea like an *arcus*

senilis, extending down from the upper edge and up from the lower edge to the pupillary margin of the iris. It had been forming for years, without any pain or irritation in the least. During the past three years there had been no increase—it seeming to be at a stand-

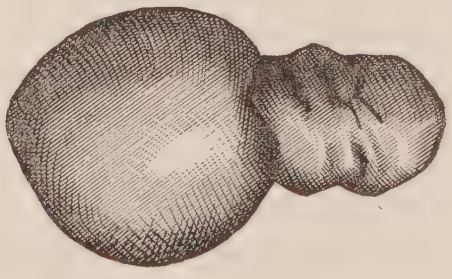
Fig. 2.

still. Fearing the loss of sight from it, he sought advice at the hospital. The right eye only was thus affected, the left at that time being perfectly clear. In connection with this case I will mention another of the same character in a gentleman whom I saw in private with both eyes so affected that there was nothing clear but a small oval opening in front of the pupil, extending, however, to each side. In neither case were the sides of the cornea covered to any extent. As there was no inflammation and no apparent increase, no treatment was recommended. Vision in both cases good.

Tumor of Cornea.—Dec. 25, 1877. Isaac Lightfoot, æt. 71. Left eye injured 30 years ago by a thistle; very little inflammatory action after it—which soon passed away. He could see with the eye until three years ago, when a little growth appeared on the outer edge of the cornea, and vision became dimmed. The growth has been increasing until now it projects an inch beyond the lids. He has had no pain till about a month ago.

Dec. 27. Enucleated the eyeball. The measurement of the growth, as represented in figure—natural size—was $\frac{7}{8}$ inch prominence from

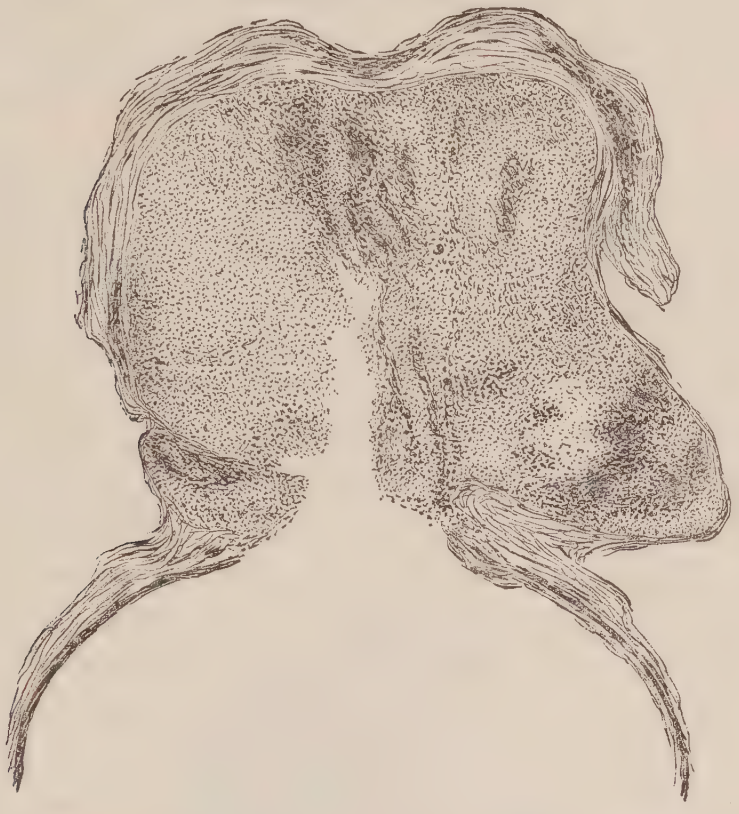
Fig. 3.



cornea, $\frac{5}{8}$ inch wide horizontally, and $\frac{1}{2}$ inch wide vertically. Microscopical examination made by Dr. Carl Seiler, who reports "the growth of the cornea shows under the microscope to be composed of round and spindle cells, which are slightly pigmented in the neighborhood of the bloodvessels. The cornea itself is intact in continuity,

preserving in portions its normal epithelium. The tumor must be considered as a mixed, round and spindle-celled sarcoma, springing from the ciliary body, and being slightly melanotic."

Fig. 4.



Uveal Tract. *Iritis with Gelatinous Exudation into the Anterior Chamber.*—J. P., æt. 22, March 1827, 1873, iritis right eye. The inflammation, with pain, came on a few days previously. The pupil was irregularly contracted; the iris swollen, considerable peri-corneal injection; vision cloudy; pain severe. He had had gonorrhœa two or three times, but never had a chancre. Has suffered from rheumatic pain in the limbs and sore throat at times. Atropia was ordered to be instilled into the eye, and 10 grains of iodide of potassium with $\frac{1}{12}$ grain biniodide of mercury and 10 minims tr. colchicum to be given internally three times daily. Iris dilated well, but color changed to dirty yellow; aqueous clear. April 5th. Iris still well and regularly dilated, but covered with hemorrhagic spots. The pupillary region is completely covered with a grayish, translucent, gelatinous mass, apparently issuing from or attached to the edge of the iris. It looks as if the lens had been dislocated forward and become slightly opaque. April 10th. The gelatinous exudation has increased so as to almost fill the anterior chamber, and is as opaque as a cataractous lens. The vision is reduced to the distinguishment of a bright light only. April 15th. Exudation remains as when last seen. There is considerable hemorrhage into

the anterior chamber. April 19th. The hemorrhage that was in the anterior chamber has been absorbed and the exudation less opaque. May 8th. The whole of the semi-transparent, coherent mass is absorbed; the anterior chamber is clear; the iris still discolored, but well dilated. By ophthalmoscopic examination; vitreous found to be quite clouded. From this day on, absorption went on rapidly, and the eye cleared up, so as to give a vision of $\frac{20}{XL}$.

The points of interest in this case are, 1st, the hemorrhagic spots on the iris; 2d, the gelatinous exudation into the anterior chamber from the iris; 3d, primary cause, whether of syphilitic origin or not.

The hemorrhagic spots were peculiar. When first noticed there appeared but three or four little globules of blood oozing out of and resting on the iris, no doubt held in position by still being under its epithelium. They increased in number, and some coalescing, formed long oval spots, then passing through the epithelium, fell to the bottom of the anterior chamber forming a hyphæma.

The first appearance of the gelatinous exudation was immediately over the pupil, and looked as if the lens was slipping through.

From the symptoms of the sore throat and the cloudiness of the vision, I have no doubt that he had a urethral chancre at one of the times he says he was suffering from gonorrhœa, and that syphilis was the real cause of the trouble, although at no time could I see a well-defined gummy tubercle on the iris.

This exudation from the iris with iritis is a very rare occurrence, there being but few cases recorded, all of which so far published have been in males; and, in looking over them, I am of the opinion, that, where this peculiar gelatinous exudation from the iris into the anterior chamber exists, syphilis will be found in the patient.

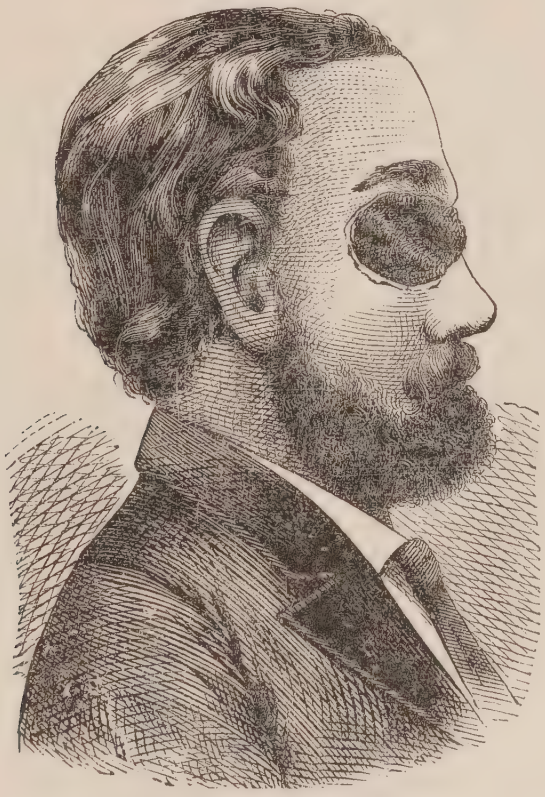
Up to the spring of 1876, *glaucoma* was treated only by iridectomy, as recommended by von Graefe, in cases where there was a possibility of recovery of vision, and sometimes for relief of pain in eyes lost by this dread disease. At that time, long before the issue of Lacquere's article, my accidental discovery of the anti-glaucomatous action of eserine took place in the case of extraction of cataract of Philip Ensley;[1] when it for awhile took the place of operative influence in some of my cases, but was found only palliative and warded off recurrent attacks; but in most cases an opera-

[1] See List of cataract extractions in this paper—date, May 20, 1876—and reference to it in de Wecker's articles "Ueber Eserine Gebrauch," in the Klinische Monatsblätter für Augenheilkunde, Feb. 1877, and "De l'emploi de l'esérine en therapeutique oculaire," in the Annales d'Oculistique, January and February, 1877.

tion was eventually performed to save the eye. Sclerotomy, as recommended by de Wecker, was made with great success in some cases, but after an experience of thirty-one operations (private as well as hospital), it was found not as reliable as iridectomy. It will be well to note here a case in which I made sclerotomy for glaucoma simplex, when acute glaucoma set in the next day and eserine giving no relief iridectomy was necessarily made which saved the sight.

Melanotic Sarcoma of Choroid, Orbit, etc., with Metastasis and Death.—Charles Bart, æt. 66, came to my clinic September 18, 1875, with a large, ugly, black and red fungus-like growth, the size of a man's fist, protruding out of the right orbit. He gave the history that he was always well until six years previously, when he had an attack of typhoid fever, and on recovery therefrom noticed a dimness in the vision of the right eye, which increased in a short time to total blindness. He very seldom had any pain in the eye,

Fig. 5.



it might have been a few shoots like neuralgia. In the middle of April, 1874, he noticed a small swelling in the eye, which gradually increased until the whole eye was covered; but still no pain, and really paid no special attention to the eye until it became so large, ugly-looking, and discharging, when he sought relief at my clinic.

He was admitted for operation, and the accompanying drawing was made at the time.

September 23, 1875. The patient being put completely under the influence of sulphuric ether, I removed the contents of the orbit and cut the optic nerve back at the foramen opticum. He did remarkably well after the operation, and in a few days was out of his bed walking around the hospital. He complained of only a slight pain or heaviness in the head at times. His appetite was good and he slept well. He seemed to continue improving until the morning of October 20th, at which time he could not rise out of his bed; there was great prostration, and he complained of pain in the central and right hypochondriacal region. His extremities were cold, and no pulse could be felt at the wrists. Stimulants and external applications were of no benefit to him, as he gradually sank, and died the next day, October 21st, at 3 P. M.

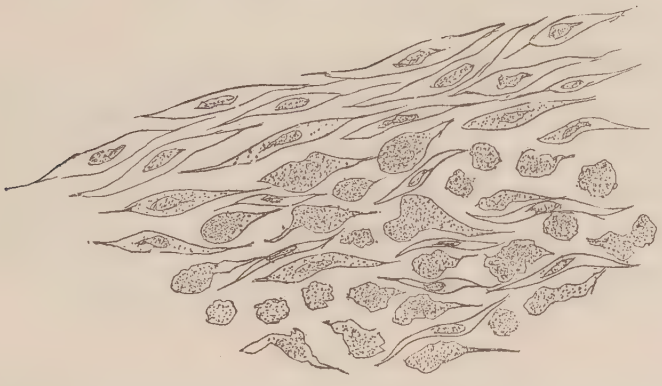
Post-mortem examination made the next morning by the Resident Surgeon, Dr. Frank Fisher, assisted by Dr. William Penn Buck and myself. The pigment from the melanotic tumor of the eye had passed up along the sheaths of the optic nerve, through the optic foramen, and extended along and was distributed throughout the pia mater for a considerable distance in the skull. There was no pigment seen in the brain-substance itself, remaining altogether in the lining membranes. Heart and lungs healthy, but liver enlarged and filled with large and small black deposits from the size of a pea to an almond. Kidneys comparatively healthy. The liver was the really diseased organ. A part of it was removed for microscopic examination.

After the removal of the eyeball it was found that the melanotic fungoid growth projected from the front part, and that the back part of the eye was only pigmented and not softened and ruptured throughout the orbit. The whole was placed in Müller's solution to harden for microscopical examination, after which sections were made by myself and my friend Dr. J. Janvier Woodward, U. S. Army, at Washington, to whom I sent part of the growth, and they showed a round and spindle-celled sarcoma very densely pigmented. Sections of the optic nerve showed infiltration of the pigment between the outer and inner sheaths. The growth and ball were so enlarged and fungoid that it was impossible to make out the origin of the disease, but as the back part of the eye was somewhat intact, and from the history of the case, there is no doubt that it originated in the ciliary process.

The appearance of the liver was very interesting on account of the varied deposits of heavy black pigment in different sizes and

shapes. Large pieces containing the deposits were cut out and preserved in alcohol for examination. Dr. Carl Seiler was kind enough to make a section of this for me, and reports: "The metastatic deposit in the liver shows at the edges of the nodes densely packed large spindle cells, which toward the centre become more and more pigmented and distorted in shape, being there loosely connected by a delicate stroma of fibres. The growth, therefore, shows the characteristic of a spindle-celled sarcoma having undergone melanotic change." See Fig. 6.

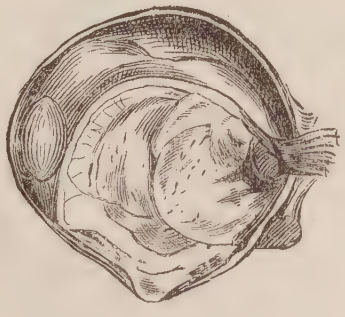
Fig. 6.



300 X

January 24, 1874. Rev. R. A. Van Court, æt. 32, came with great pain and loss of vision in left eye. The history given was that three years ago the sight of this eye began to fail without any perceptible cause. There was no pain or irritation at that time. A dull aching feeling set in about three months previous to his visit to my clinic, and had increased to sharp, exquisite pain, extending up into the head. The eyeball was much inflamed and chemosed. T + 3. No illumination of the fundus could be made.

Fig. 7.



Suspecting intra-ocular growth enucleation was advised, which operation was performed the next day. The ball was hardened, cut, and found as per Fig. 7. It was a brown tumor in the lower

part of the eye, springing from the choroid below the optic-nerve entrance, composed of two parts; that towards the disk was of little lighter color and firmer consistency, containing quite a large cavity immediately in front of the papilla, filled with a lead-colored soft mucoid substance. The anterior part of the tumor, which was the larger, extended forward to the lens, and was almost pushing its way through the lower part of the sclerotica. This portion was of darker color, and appeared to have a softer consistency. The retina was pushed up from below by the upper wall of the tumor in its growth. The upper part of the retina is detached, as seen in the figure, no doubt occurred after the operation during the hardening process, etc.

From one-half of the tumor microscopical sections were made for examination, which demonstrated it to be a small round-celled melano-sarcoma of the choroid. Throughout the growth are to be seen round, oval, and irregular-shaped cavities, containing disintegrated blood-cells, with particles of pigment distributing themselves in the tissue in larger and smaller deposits.

Fig. 8.

Fig. 8. Shows the choroidal line of the tumor at its origin, and the pigment entering the growth.

Fig. 9.

Fig. 9. Part of the tumor showing bloodvessels, disintegrated blood-cells and pigment deposits, with small, round sarcoma cells.

Fig. 10. Enlarged or magnified cavities containing disintegrated blood-cells.

Fig. 10.

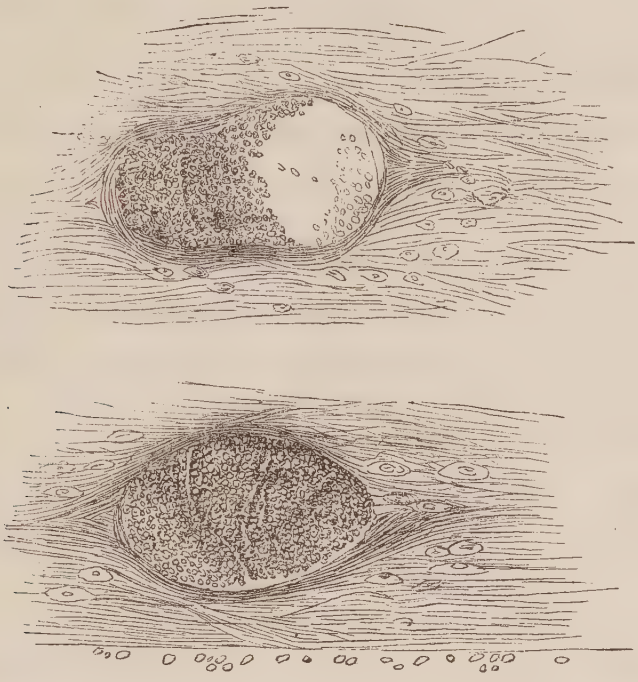


Fig. 11. A magnified cavity bursted, and letting the cells out in the tissue.

Fig. 11.

Sympathetic Ophthalmia.—It is natural to suppose, that, in a large manufacturing city like this, many injuries to the eye occur, and, arising therefrom, the danger of sympathetic ophthalmia is necessarily to be carefully guarded against, more especially so in young patients. It is, without doubt, the most dangerous form of inflammation of the eye, and is a disease so insidious in its attack, that when once developed it almost defies any treatment to restrain its progress. Recovery from a well-established case is so seldom, that the history of the following case is of interest:—

Oct. 2, 1880, Emma Collins, æt. 4, received an incision on the outer side of the cornea of the right eye, at the sclero-corneal edge,

from a pebble shot from a rubber gun. The incision was 2 mm. in length, perfectly straight and clean, as if made by a knife, and through which the iris was prolapsed the size of a mustard-seed. Neither capsule nor lens was injured. Atropia having no power to reduce the prolapse of the iris, the child was etherized, and a free iridectomy made, immediately after which the cut edges and angles of the iris were properly replaced by the spatula, as well as gentle rubbing of the lid over the cornea. The eye did well, and seemed perfectly healed at the end of two weeks. After an absence of fourteen days, the child was again brought with both eyes troubling her. She did not open her eyes nor hold up her head, but permitted herself to be led. Upon examination, it was found that the left eye was seriously sympathetically affected. There was marked ciliary injection; discoloration of iris; photophobia with lachrymation; the anterior chamber was, however, normal; the aqueous humor slightly discolored; edges of the pupil had the appearance of thin lymph being thrown out; lens not entirely clear, so much so with the slight discoloration of the aqueous as to prevent a clear view of the fundus. The ciliary region was somewhat painful on pressure on the eyelid over the part. Vision was dim, and the little patient saw better out of the injured eye. No pain in the least had been complained of at any time. The right, or injured, eye looked very well, it was quiet and clear, but, on close examination, I found that the upper edge of the iris had been washed back into the corneal incision, and was there attached in the cicatrix, causing a pulling on the tissues of the iris and ciliary body. The question came now, what is the prognosis, and what is to be done? It was too late to remove the injured eye, and it had just now the best vision, so that it might eventually be the better eye, or the only one retaining sight. On consultation with my colleagues, the prognosis was declared bad with no hope; and all agreed that it was too late to enucleate the right eye. I proposed then to free the iris by operation from its attachment to the cornea, which was at once done, after which a weak solution of atropia (gr. $\frac{1}{2}$: $\overline{3}$j) was instilled into the eyes, and both completely covered by a thick black bandage, so that not a ray of light could penetrate anywhere. Unguentum hydrargyri was rubbed night and morning on the left temple, and $\frac{1}{8}$ gr. quinia sulph. with $\frac{1}{10}$ gr. extr. belladonna, given inwardly three times a day. She was kept in a dark room, and every precaution was taken to prevent any light from striking the eyes, except for a moment from a small candle when using the collyrium. She was regularly walked about the room for exercise and amusement. After two weeks' treatment and entire exclusion of light, the left eye began to look better; the

pupil dilated somewhat, and the ciliary injection was less. The right eye healed from the last operation, and remained quiet. Treatment continued. On the fourth week, no lymph was to be seen in the pupil of the left eye, and it was largely dilated; the eyeball was free from any inflammation. As soon as the lids were opened, the little patient remarked that she could see. The right eye did not look so well; there was considerable peri-corneal injection, and the sight very dim. In a few days the sight of the eye was entirely lost, and the peri-corneal injection had much increased. The left (or sympathetically affected) eye had cleared up perfectly, there was not a sign or trace of inflammation about it; the pupil was dilated ad maximum with no adhesions, and sight had returned. As the inflammatory action had left the left eye and passed entirely over to the injured one, I thought now was the time for operative influence, and at once enucleated the right eye. She was discharged six weeks after with perfect vision in the remaining eye, and has so continued to this day. The enucleated ball was cut through the antero-posterior line in the horizontal axis incising the cicatrix. The iris was found free from any adhesion, but thickened at the outer ciliary border and attached to quite a formation of lymph that was lying on the ciliary body along the upper line of the incision of the iris (the place of attachment which was cut through), while the lower line of the iridectomy was perfectly free. In examining this case critically, it will be seen that the sympathetic affection was created by the drawing on the iris and ciliary body by the attachment of that part of the iris in the corneal wound, and was of such a character as to cause exudation of lymph on the ciliary body in that neighborhood, but out of the direct line of the incision, being just above the point of the upper line of the excision of the iris, the part that was washed back into the corneal wound after the iridectomy. This case is instructive, showing that the sympathetic affection originated from the irritation created by the attachment of the iris in the corneal wound; for no doubt relief was gained in cutting through this adhesion, and abating the irritation of the ciliary nerves. The treatment by complete exclusion of light with quinine and belladonna internally, and a weak solution of atropia as a collyrium, without question had much to do with the alleviation of the trouble. The quinine was given in small doses as a tonic to keep up health and strength while so closely confined. The belladonna was to act sedatively as well as antiphlogistically. A weak solution of atropia was used for the reason that I think in such cases a stronger one would be injurious from the severity of its action, in irritating the iris in too strongly and sud-

denly attempting to dilate its muscular fibres, and thus also excite the ciliary body too much just at this stage of the disease.

Detachment of the Retina was treated by de Wecker's method of drainage, the instruments for which were kindly sent to me by my friend, Dr. de Wecker, of Paris, with a letter of special instruction for their use. The operation was made three times for detachment and twice for the relief of pain and irritation in eyes lost by glaucoma, but it was not attended with the satisfactory success expected. Detachments were also torn through with the needle both anteriorly and posteriorly without positive permanent success. Pilocarpine hypodermically was tried also, and I regret to say that I cannot join in with those who sing its praises so high as to make one believe its use will make a positive cure—in other words, cause the complete absorption of the fluid between the detached retina and the choroid so that the former will resume its proper position of lying close to the choroid. Benefit was derived from its use, however, in clearing up some cases of opacities in the vitreous, but the same power of absorption has been noticed on the use of corrosive sublimate. I found the greatest advantage in the use of both remedies in the same patient—a course of the mercury first, followed by the philocarpine.

Foreign Bodies.—Many cases of foreign body in the eye present themselves at this hospital yearly, coming from the large coal mining and iron manufacturing districts of the State as well as from the city. A few cases may be of interest here:—

Dec. 24, 1878, Edward Fleming, æt. 41, received an injury in the eye from a piece of iron on which he was hammering. On careful examination a small incision through the cornea was noticed, and a little splinter of iron was resting on the iris in the outer side just a little back of the pupillary margin. An incision was made with a narrow double-edged knife through the cornea at its extreme outer edge so as to prevent any prolapse of the iris, and a pair of Passavant's forceps passed in with which the foreign body was grasped and removed. The iris was not injured in the least. Eserine was instilled into the eye to contract the pupil and draw the iris from the corneal incision. In a few days the eye was well, and showed no signs of injury.

May 29, 1879. The same accident occurred to Jas. J. Crouch, æt. 45, a marble cutter, while working upon the public buildings. A piece of steel flew from his chisel or hammer, penetrated through the

centre of the cornea, and dropped down on the lower part of the iris. It was removed in the same way without injury to iris or eye.

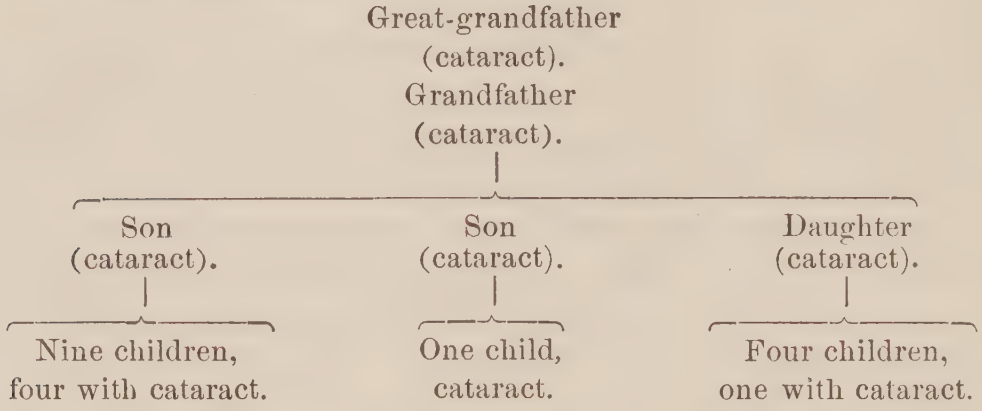
June 5, 1873, John Maxwell, æt. 30, called to consult about a small ulcer on the cornea of the right eye, from which he had been suffering for a day or two. On examining the left eye there was noticed a foreign body lying on and impacted in the iris in the direct outer segment. Also in the lower and outer quadrant of the cornea there was a piece of iron which was rusting and diffusing itself throughout the tissue. He reported that the injury and entrance of the foreign bodies occurred over a year ago, but as the eye had never been inflamed nor given him any inconvenience, he had not consulted a physician about it. The iris contracted and dilated promptly and readily in every part, except that where the foreign body was impacted. It was necessary in this case to make iridectomy in removing the foreign body, which proved to be a piece of stone.

Frederick Fromhagen, æt. 26, came with left eyeball atrophied, and which was now inflamed, causing much pain and trouble. This eye was lost twenty years previously by a piece of gun-cap flying into it. It has never given him any trouble until lately, when it has become very irritable, and is now affecting the other eye. The stump was enucleated, and a piece of gun-cap was found encysted on the choroid not far from the ciliary body.

This case is very interesting: 1st, from the age of the child (but six years) when the foreign body passed into the eye, and non-existence of sympathetic ophthalmia while so young; and, 2d, the great length of time (twenty years) before any irritation arose to require surgical interference to save the remaining good eye.

Congenital Cataract.—The inheritancy of congenital cataract is shown in a family, several of whom I have operated on during this decade of service in the hospital. In 1879 Mrs. D., of Norristown, brought me a son and daughter with congenital cataracts for operation. The boy was aged 15 years, and the girl 11. She (the mother) told me that she had nine children, four of whom were born with cataracts; that her husband was born so, and that he had a brother and sister also so affected, all of whom were operated on when children in the Wills Eye Hospital. Her husband's father and grandfather were also similarly affected. His sister, above mentioned, is married and has four children, one of whom was born with cataracts. The brother, above mentioned, is also married and has one child who was born with cataracts. It will thus be seen

how this congenital affection passed down in four generations, increasing in its descent.



I have, to this time, 1883, operated on five of the children.

Dislocation of Lens.—It is not an infrequent occurrence for the lens to be dislocated by blows on the eyeball; and this dislocation may be a partial movement to the side or above or below, and at times, though rarely, completely into the anterior chamber in front of the iris, and sometimes back out of sight in the posterior chamber; but the turning of the lens on its axis and remaining in the pupil is to me such a novelty, that I cannot refrain from describing the following case:—

September 10, 1877. Jeremiah B., æt. 13, one week ago was hit on the left eye by a stone. There was some chemosis of the bulbar conjunctiva, artificial mydriasis, and cloudiness of the lens. There is the appearance of an opaque band extending from the top to the bottom across the eye, apparently on the posterior layers of the cornea. The ophthalmoscope shows a dense central, vertical opacity, with some clearness at either side, which by concentrated light is seen to be the lens dislocated and turned on its vertical axis, so as to present one edge anteriorly in the anterior chamber and the other posteriorly in the posterior chamber. Tension normal, and no pain. Atropia was ordered for a better examination. September 13, 1877. Pupil more dilated and lens found in same position. Vision fingers at two and a half feet.

Cataract Extractions.—As reported, I made 148 extractions of cataract by different methods, during this time, as follows: [Where no special note of the method of operation performed is mentioned, that of the modified v. Graefe was made, the incision of the cornea in some cases coming out in the cornea just by the limbus conjunctivalis, and in others further back behind the limbus, so as to make a conjunctival flap over the incision. When no special

notes of the case are made, the operation passed off without any mishap, and healed without any inflammatory or other trouble.

The dates of the operations are not those of the admissions in the hospital, but the time when the cataracts were in condition and extractions made. Many cases were under observation for months and years before ready for operative influence.]

May 2, 1872. James Lyons, æt. 60. Cat. R. E. Vn. + 3 $\frac{20}{LX}$.

June 22. James Osborn, æt. 73. Cat. both eyes; op. R. E., v. G. Some little vitreous lost, coming out immediately after the iridectomy. Lens removed by rubber curette. July 15, discharged. Vn. + 3 $\frac{20}{L}$.

July 23. Edwin Gidley, æt. 34. Cataracts; op. L. E. Vn. + 4 $\frac{20}{XL}$.

August 10. Ellen McMenany, æt. 65. Cataracts; op. R. E. August 29. Vn. + 4 $\frac{20}{XL}$.

August 31. Mary Baldwin, æt. 60. Cataracts; op. L. E., Liebreich's method. Iris and upper part of the cornea formed a hood, which not only prevented the free exit of the lens, but scraped all the soft cortical mass back into the chamber. Slight iritis after the fifth day, which passed away on use of atropia. Vn. + 4 $\frac{20}{CC}$.

August 31. John Devine, æt. 68. Cat. R. E. Lens removed after a preliminary iridectomy on August 1st. Some little vitreous was lost on the extraction of the lens. September 21. Vn. + $3\frac{1}{2}$ $\frac{20}{C}$.

September 24. Frank Kirkpatrick, æt. 46. Lens extracted from L. E. after a preliminary iridectomy six weeks previously. Vn. + 4 $\frac{20}{CC}$.

October 1. Jacob L. Teel, æt. 75. Op. v. G. Iritis three days after. Healed with occlusion of the pupil.

October 15. Thomas Young, æt. 38. Extraction of lens of the L. E. after a preliminary iridectomy, lower section. Vn. + 4 $\frac{20}{XL}$.

November 5. Mary Baldwin, æt. 60. Operation in R. E., v. G. Lens removed by the scoop; no vitreous lost. Vn. + 4 $\frac{20}{C}$.

January 7, 1873. D. L Sweeney, æt. 26. Traumatic, R. E., from blow; extraction, v. G. Vn. + 4 $\frac{20}{LX}$.

January 25. Wm. Morris, æt. 36. Extraction after preliminary iridectomy six weeks previously. Vn. + $3\frac{1}{2}$ $\frac{20}{XL}$.

March 27. Michael Cummiskey, æt. 23. Complicated, capsular and cortical; extracted after Pagenstecher's method, the lens in its capsule being removed by the scoop. Some vitreous lost, and slight hemorrhage into the anterior chamber; eye healed well; hemorrhage long absorbing; vitreous clouded. Vn. + 4 $\frac{10}{CC}$.

May 10. Arthur Robbins, æt. 30. Extracted lens of L. E. after preliminary iridectomy. Vn. + 4 $\frac{20}{XXX}$.

May 29. Catherine Burhenne, æt. 58. Operation L. E., v. G. Vn. + 4 $\frac{20}{XX}$.

June 10. Jane Hagen, æt. 62. Operation L. E., v. G. Vn. + $3\frac{1}{2}$ $\frac{20}{XXX}$.

October 2. John Cummiskey, æt. 22. Extraction R. E., v. G. Vn. + 4 $\frac{20}{C}$.

October 18. Hannah White, æt. 46. Extraction R. E., v. G. October 30. Vn. + 3 $\frac{20}{C}$.

October 30. Ellen Turney, æt. 30. Extraction L. E. after Liebreich. Vn. + 3 $\frac{20}{C}$.

October 30. Amanda Peddrick, æt. 34. Post. cortical cataracts (both eyes). Noticed about three years a dimness of vision. The deposit is a beautiful network on post. part of lens; too large for the operation of iridodesis or iridectomy. Proposed to make discission and then extraction. November 6. Made slight puncture through ant. capsule, L. E., to hurry up the formation of the cataract. November 11. Lens softened and very much swollen, causing great pain, T + 3. Made linear cut through the cornea outer side, let off what soft cortical would come out, then introduced end of Bowman's suction pump, and drew out all that was soft. The great pain was soon relieved. November 14. The tension of the ball has increased considerably, and pain is setting in again. That part of the lens not removed in the first operation has swollen to such an extent as to almost fill the ant. chamber. November 16. Pain and tension increasing, so that this day made upper section, iridectomy,

and removal of the remaining portion of the cortical mass. After operation, Vn., fingers readily at 1′–2′. Vn. $+4\ \frac{20}{C}$.—R. E. operated on also the same way, one year after. Vn. $+4\ \frac{20}{C}$.

November 4. Herman Fix, æt. 68. Operation R. E., v. G. Lens removed by wire loop. Twelve days after slight pain in the eye and iritis set in, throwing out lymph which filled in the lower part of the pupil. December 2. Made iridectomy inward and removed the lymph in the pupil with the piece of iris. Vn. $+4\ \frac{20}{C}$.

November 4. Catherine O'Donnell, æt. 67. Operation R. E. The capsule contained large calcareous deposits, so it was opened at the extreme upper periphery, and lens extracted by pressure; after which a pair of iris-forceps was passed in, well down, with the capsule between the blades, and the whole anterior capsule drawn out without any loss of vitreous. January 27, 1874. Vn. $+3\frac{1}{2}\ \frac{20}{C}$.

November 13, 1873. Jane Peterson, æt. 58. Operation R. E., v. G. Considerable hemorrhage into the anterior chamber, which was removed before extraction. Lens extracted by v. Graefe's hook; no loss of vitreous. Vn. $+4\ \frac{20}{C}$.

November 13. Patrick McIntyre, æt. 50. Traumatic; lens extracted with iridectomy, v. G. Vn. $+4\ \frac{20}{LXX}$.

December 4. Barney Quinn, æt. 26. Fifteen months ago bit by a horse, catching the left brow and cheek bone; great inflammation for some time, after the reduction of which the eye began to fail. At this date P. and P. perfect; operation v. Graefe's method, and immediately after the extraction of the lens, the vitreous, which was fluid, spirted out in considerable quantity. Eye totally lost.

December 20. Michael McGlynn, æt. 54. Extraction R. E., v. G. Vn. $+4\ \frac{20}{C}$.

December 25. John Casper, æt. 32. Operation L. E. Fluid vitreous, which ran freely out immediately after the incision of the cornea. Eye lost

December 30. Elizabeth Fisher, æt. 70. Extraction R. E., v. G. Vn. $+3\ \frac{20}{C}$.

February 26, 1874. Arthur Noble, æt. 29. Traumatic, R. E.; extraction v. G. Vn. $+4\ \frac{20}{XXX}$.

March 5. Wm. Rimbach, æt. 58. Operation L. E., v. G. Vn. $+6 \supset +10$ cyl. $30° \frac{20}{XXX}$.

March 19. Maria Heylin, æt. 50. Operation R. E., v. G. Vn. $+3 \frac{20}{XL}$.

March 21. Rebecca Mead, æt. 66. Operation L. E.; extraction after preliminary iridectomy on account of posterior synechiæ. She had also suffered with chronic conjunctivitis for some years, and entropion lower lid for two years. This was removed by operation before the extraction. Immediately after extraction, slough of cornea set in, and eye lost.

April 4. Christian Nelson, æt. 24. Traumatic, R. E.; extraction v. G. Vn. $+4 \frac{20}{XL}$.

April 7. Patrick Farack, æt. 30. Operation R. E.; v. G. Vn. $+4 \frac{20}{XL}$.

April 14. Jane Lennox, æt. 62. Cornea small, diameter 9 mm.; L. E. congenital coloboma iridis. Made incision well back from corneal edge, and downward across the coloboma. Lens very large, and removed by scoop. Vn. $+3 \frac{20}{C}$.

April 30. Mary Brown, æt. 70. Operation R. E., v. G. Vn. $+3\frac{1}{2} \frac{20}{LXX}$.

May 5. Robert Emes, æt. 61. Operation R. E., v. G. Large conjunctival flap. Removed a large piece of ant. capsule before the extraction of the lens. Vn. $+4 \supset +10$ cyl. $150° \frac{20}{XXX}$.

May 23. Sarah Jack, æt. 60. Operation R. E., v. G. Vn. $+8 \supset +20$ cyl. $180° \frac{20}{LXX}$.

May 30. James Lyons, æt. 65. Operation L. E., v. G. Large conjunctival flap. Considerable hemorrhage into the ant. chamber from conjunctiva; which was removed, and lens extracted by wire loop. Vn. $+3\frac{1}{2} \frac{20}{L}$.

June 11. Jonathan Jess, æt. 69. Operation R. E., v. G.; over-ripe (cataracta lacta); nucleus of lens removed by wire loop; slight loss of vitreous. Healed with iris drawn well up, leaving small pupil. Vn. $+4 \frac{20}{CC}$.

September 15. Patrick Fay, æt. 55. Operation R. E., v. G. Vn. $+4\ \frac{20}{C}$.

September 19. Mary Johnson, æt. 35. Operation R. E., v. G. Capsule remained over the pupil, necessitating a secondary operation with needle. Vn. $+4\ \frac{20}{L}$.

October 13. Jonathan Jess, æt. 69. Operation L. E., v. G. Vn. $+4\ \frac{20}{XL}$.

October 17. Mary Johnson, æt. 35. Operation L. E., v. G. Vn. $+4\ \frac{20}{XL}$.

October 20. Samuel Koons, æt. 74. Extraction of lens R. E. after a preliminary iridectomy twenty days previously. Vn. $+4\ \frac{20}{XX}$.

November 7. Henry Graham, æt. 53. Operation R. E., v. G. Vn. $+4\ \frac{20}{XL}$.

November 12. Isaac Hann, æt. 73. Operation L. E., v. G. Vn. $+4\ \frac{20}{XL}$.

November 14. Comfort Harmon, æt. 75. Operation L. E., v. G. On the third day after, tore off the bandage in the evening and laid chewed tobacco over the eye all night without injury. Vn. $+4\ \frac{20}{C}$.

November 19. Maria Heylin, æt. 50. Operation L. E., v. G. Slight hemorrhage in ant. chamber; clot removed with iris-forceps. Vn. $+3\frac{1}{2}\ \frac{20}{L}$.

December 1. Robert Emes, æt. 61. Operation L. E., v. G. Vn. $+4\ \frac{20}{L}$.

December 3. Margaret Smith, æt. 65. Operation R. E. The lens reduced, is floatant with iris on motion of the eyeball. P. and P. perfect. Pupil dilated well under atropia. Made upper section after v. Graefe. Just after finishing the incision, the patient struggled and dislocated the lens downward, and vitreous protruded slightly out of the corneal wound. Iris did not prolapse. Lens extracted with wire loop; very little vitreous lost. As the iris did not prolapse nor was injured, iridectomy was not made. Eye healed well with iris in place. Vn. $+3\frac{1}{2}\ \frac{20}{C}$.

December 5. Mary Kiley, æt. 80. Extraction L. E. after preliminary iridectomy seven weeks previously. The corneal section for the extraction was after Le Brun. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{XXX}}$.

December 15. Sabina Henry, æt. 52. Operation L. E., v. G. This patient has been blind twenty years with cataracts. Vn. $+4$ $\frac{20}{\text{CC}}$.

December 22. Michael J. Morrisey, æt. 30. Traumatic, L. E.; operation v. G. Vn. $+4$ $\frac{20}{\text{XXX}}$.

December 29. Margaret A. Starks, æt. 54. Operation R. E., v. G. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{L}}$.

January 5, 1875. Peter W. Grover, æt. 30. Cat. L. E.; traumatic; operation v. G. Vn. $+3$ $\frac{20}{\text{LXX}}$.

January 9. Mary Newton, æt. 43. R. E., traumatic; operation v. G. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{C}}$.

January 19. Patrick Marley, æt. 33. Operation L. E., v. G. Vn. $+4$ $\frac{20}{\text{C}}$.

January 19. Margaret A. Starks, æt. 54. Operation L. E., v. G. Vn. $+3\frac{1}{4}$ $\frac{20}{\text{LXX}}$.

February 16. Sabina Henry, æt. 53. Operation R. E., v. G. Iritis set in on the third day after; occlusion of the pupil.

May 20. Charles Hertz, æt. 57. Operation L. E., v. G. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{LXX}}$.

September 21. Hannah Adams, æt. 73. Operation L. E., v. G. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{C}}$.

October 13. Maria Luckenbach, æt. 73. Operation L. E., v. G. Vn. $+3$ $\frac{20}{\text{C}}$.

November 30. Mary Gillen, æt. 67. Extraction of lens after preliminary iridectomy six weeks previously. Iritis set in on the fourth day after. Healed with occlusion of the pupil. May 2, 1876. Iridectomy. Vn. $+4$ $\frac{20}{\text{C}}$.

November 11, 1875. F. J. Osborne, æt. 63. Extraction of lens L. E. after a preliminary iridectomy four weeks previously.

Vn. $+3\frac{1}{2}$ $\frac{20}{C}$.

December 16. Andrew McCutcheon, æt. 70. Operation L. E., v. G. Passavant's operation for removal of posterior synechia was made on this eye some months previously. In the extraction the vitreous was forced out immediately after the iridectomy. The lens was removed by the scoop. Inflammation of iris and slough of the cornea set in, and necessitated the enucleation of the ball, July 27, 1876.

March 18, 1876. Patrick Teigh, æt. 56. Operation L. E., de Wecker's modified flap. Vn. $+4$ $\frac{20}{LXX}$.

April 27. Jane Lennox, æt. 64. Operation R. E., v. G.

Vn. $+3$ $\frac{20}{C}$.

May 6. Elizabeth McKeever, æt. 62. Operation L. E., de Wecker's modified flap. Iris prolapsed a little, and was replaced with the spatula. Pupil began to contract in less than 5″ after the instillation of eserine. Vn. $+4$ $\frac{20}{XL}$.

May 11. F. J. Osborne, æt. 64. Operation R. E., de Wecker's method. Iris prolapsed and could not be reduced, so made iridectomy after the extraction of the lens. Considerable hemorrhage into ant. chamber. In endeavoring to remove it, posterior capsule was ruptured and some vitreous was lost. Occlusion of the pupil from iritis.

May 9. Christian Stobe, æt. 72. Operation L. E., v. G.

Vn. $+3$ $\frac{20}{C}$.

May 20. Philip Ensley, æt. 66. Operation L. E., de Wecker's method. Close contraction in 5″ after instillation of eserine. On second day a 4 gr. solution of atropia sulph. was instilled to dilate the pupil and free the iris from the torn capsule. The pupil dilated only about half, and on the second day after the atropia was used the ball became very hard, T + 3. A glaucomatous condition set in, incision of the cornea opened; iris prolapsed a little, and the aqueous oozed out. There was no swelling of the lids. To reduce the prolapsed iris, eserine gr. 4 : ℥j was instilled every ten minutes for an hour, when it was found not only that the iris went back into its place, but that the tension of the eyeball was diminished. Eserine was now continued twice daily until eye was healed. June 22.

Vn. with $+4\ \frac{20}{C}$. A line of capsule ran vertically across the centre of the pupil.—I communicated this antiglaucomatous action of eserine at once to Dr. L. de Wecker, Paris.

October 3. Andrew McCutcheon, æt. 71. Extraction of lens R. E. after a preliminary iridectomy. Vn. $+3\frac{1}{2}\ \frac{20}{C}$.

October 12. Jane English, æt. 72. Operation R. E., v. G. Vn. $+4\ \frac{20}{XL}$.

November 21. Levi Brown, æt. 58. Operation L. E., v. G. Removed large piece of ant. capsule. In healing no anterior chamber formed for two weeks, but after that all went well. Vn. $+4\ \frac{20}{LXX}$.

January 9, 1877. Rebecca Carkuff, æt. 70. Operation R. E. Attempted de Wecker's method, but lens would not come out; slipped under iris and back of sclero-corneal edge, so made iridectomy, and removed lens with scoop. Vn. $+4\ \frac{20}{C}$.

January 11. John Walder, æt. 63. Operation R. E., v. G. Considerable hemorrhage in ant. chamber from the iris after iridectomy, which was checked by ice-water cloths laid over the eye. The clot was removed by the forceps before laceration of the capsule. Vn. $+4\ \frac{20}{C}$.

February 17. Joseph Gaskill, æt. 67. Operation L. E., v. G. Removed large piece of ant. capsule. Vn. $+4\ \frac{20}{L}$.

February 22. Ellen Long, æt. 60. Operation R. E., v. G. Some hemorrhage after iridectomy, removed before laceration of capsule. Removed large piece of ant. capsule. Vn. $+4\ \frac{20}{C}$.

February 26. Levi Brown, æt. 58. Operation R. E., v. G. Removed piece of ant. capsule. Vn. $+4\ \frac{20}{LXX}$.

March 15. Gibbons Moore, æt. 46. Operation L. E., v. G. Some hemorrhage after iridectomy. Removed piece of ant. capsule. Vn. $+4\ \frac{20}{XL}$.

April 17. Samuel Risley, æt. 75. Operation L. E., v. G. Large conjunctival flap. Vn. $+3\frac{1}{2}\ \frac{20}{C}$.

May 5. Adolphus G. Oatman, æt. 36. Operation R. E., v. G. The lens was very flat, no convexity; and removed with the scoop. Vn. $+3\frac{1}{2}$ $\frac{20}{LXX}$.

May 5. Mary C. Lemison, æt. 63. Operation L. E., v. G. Removed large piece of ant. capsule. Vn. $+3\frac{1}{2}$ $\frac{20}{L}$.

June 28. Thomas Leary, æt. 45. R. E. traumatic; operation v. G. Vn. $+3$ $\frac{20}{C}$.

September 27. Geo. White, Jr., æt. 44. Operation L. E., v. G. Vn. $+3$ $\frac{20}{XL}$.

October 24. George Enigh, æt. 55. Operation L. E., v. G. Eighth day after, pain, slight inflammation, and signs of capsulitis appeared, which were combated in twenty-four hours by application of ice. Vn. $+3$ $\frac{20}{XL}$.

November 15. Bridget Roach, æt. 56. Operation R. E., v. G. Cataract overripe, nucleus small; anterior capsule lacerated, upper periphery, and removed entire by forceps. No vitreous lost. Vn. $+3\frac{1}{2}$ $\frac{20}{LX}$.

November 20. George Enigh, æt. 55. Operation R. E., v. G. Vn. $+3$ $\frac{20}{XL}$.

March 28, 1878. Chas. Livingston, æt. 57. Operation L. E., v. G. Large piece of capsule removed. Lost a very small bead of vitreous from patient straining as the speculum was being removed. Vn. $+4$ $\frac{20}{C}$.

March 21. Elizabeth Bevan, æt. 31. Operation L. E., v. G. Vn. $+4$ $\frac{20}{LXX}$.

April 9. Ellen Long, æt. 61. Operation L. E., v. G. Vn. $+4$ $\frac{20}{C}$.

April 11. Michael Kennedy, æt. 60. Operation R. E., v. G. Vn. $+4$ $\frac{20}{LXX}$.

April 20. Elizabeth McKeever, æt. 64. Operation R. E., v. G. Removed large piece of ant. capsule. Vn. $+4$ $\frac{20}{LXX}$.

April 25. Mary McLaughlin, æt. 67. Operation R. E., v. G. Vn. $+4\ \frac{20}{L}$.

May 25. Hubert Maxwell, æt. 39. Operation R. E., v. G. Much soft cortical; hard nucleus removed with scoop. Vitreous came forward, which prevented the removal of all the soft cortical mass, much of which remained for absorption. Vn. $+4\frac{1}{2}\ \frac{20}{XXX}$.

September 26. Jane Tapp, æt. 69. Operation L. E., v. G. Extensive hemorrhage, controlled by iced cloths; after which extraction of a large piece of capsule. Vn. $+3\frac{1}{2}\ \frac{20}{L}$.

October 10. Wm. Barnard, æt. 55. Operation L. E., v. G. Large conjunctival flap. Removed piece of ant. capsule. Vn. $+3\frac{1}{2}\ \frac{20}{LXX}$.

October 10. T. Esher, æt. 50. Operation R. E., v. G. Vn. $+4\ \frac{20}{XL}$.

October 17. Ann Ferber, æt. 56. Operation R. E., v. G. Under ether, refused otherwise. All went well until after the bandage was applied, when vomiting and severe retching with much strain took place for hours, causing intraocular hemorrhage. Eye lost.

October 29. Samuel Brown, æt. 48. Operation L. E., v. G. Vn. $+3\frac{1}{2}\ \frac{20}{XX}$.

October 31. Mary Condon, æt. 55. Operation L. E., v. G. Vn. $+4\ \frac{20}{XL}$.

January 11, 1879. Chas. Crosta, æt. 23. Complicate capsular. Operation R. E., Pagenstecher's method of removal of lens in capsule. Some vitreous lost. Vn. $+4\ \frac{20}{LXX}$.

March 6. Bridget Roach, æt. 58. Operation L. E., v. G. Vn. $+3\frac{1}{2}\ \frac{20}{L}$.

May 1. Eliza Davy, æt. 59. Operation R. E., v. G. Vn. $+5\ \frac{20}{C}$.

May 6. Joseph McGarvey, æt. 18. Traumatic, R. E.; linear extraction. Vn. $+4\ \frac{20}{XXX}$.

May 20. Lewis Russell, æt. 66. Operation R. E., preliminary iridectomy six weeks previously. Vn. $+3\frac{1}{2}\ \frac{20}{L}$.

May 24. Job Stewart, æt. 60. Extraction of lens L. E. after a preliminary iridectomy of seven weeks, and an operation and treatment of stricture of the lachrymal duct for seven months.

Vn. $+3\frac{1}{2}$ $\frac{20}{\text{XXX}}$.

September 20. Samuel Goshorn, æt. 68. Operation L. E., v. G. Sloughing of the cornea set in the same night. Lost.

September 20. John Dickson, æt. 58. Extraction of lens L. E. Preliminary iridectomy in May, 1879. Vn. $+4$ $\frac{20}{\text{LX}}$.

September 20. John Shields, æt. 58. Operation R. E., v. G. Cornea was slightly clouded from old conjunctivitis and pannus. Vn. $+4$ $\frac{20}{\text{CC}}$.

September 30. John Reed, æt. 63. Operation L. E., v. G. After laceration of capsule, vitreous came forward and lens was delivered with the loop. But little vitreous lost. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{CC}}$.

October 18. Operation R. E., v. G. Some hemorrhage after iridectomy, checked by cold-water cloths. Vn. $+4$ $\frac{20}{\text{C}}$.

October 11. Deborah Levering, æt. 76. Operation R. E., v. G. Vn. $+4$ $\frac{20}{\text{C}}$.

October 11. Eliza Griffiths, æt. 68. Operation L. E., v. G. There was much difficulty in delivering the lens, which stuck in the corneal incision. It was finally grasped with the forceps and drawn out. Some little vitreous followed. Vn. $+3\frac{1}{4}$ $\frac{20}{\text{CC}}$.

October 14. Andrew Larkin, æt. 49. Extraction of lens R. E. after preliminary iridectomy, September 9, 1879. Vn. $+4$ $\frac{20}{\text{XL}}$.

November 8. Margaret Basehor, æt. 67. Extraction of lens L. E. after preliminary iridectomy four weeks previously. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{L}}$.

November 20. Samuel Turner, æt. 62. Operation L. E., v. G. Some little vitreous followed the lens. Vn. $+4$ $\frac{20}{\text{LXX}}$.

November 22. Max Mühlig, æt. 62. Extraction of lens R. E. after preliminary iridectomy six weeks previously. Lens very dark brown and hard. Vn. $+8$ $\frac{20}{\text{C}}$.—Oph. ex. shows large atrophy of

choroid around the disk, and small oval and round patches throughout the fundus.

December 11. Mary Dougher, æt. 40. Operation L. E., v. G. Vn. $+4\ \frac{20}{XX}$.

February 10, 1880. Robert Rolly, æt. 65. Operation R. E., v. G. Removed piece of capsule. Vn. $+4\ \frac{20}{C}$.

March 2. Rebecca Myers, æt. 77. Operation L. E., v. G. Removed piece of capsule. Vn. $+3\ \frac{20}{LXX}$.

March 2. William Smith, æt. 18. Complicate capsular. Iridectomy preliminary. On extraction, ant. capsule so tough that cystotome would not penetrate nor tear it, so opened with a v. Graefe cataract-knife, and extracted with forceps; lens delivered by pressure. Vn. $+4\frac{1}{2}\ \frac{20}{XL}$.

March 16. J. Master, æt. 73. Operation L. E., v. G. Vn. $+3\ \frac{20}{XXX}$.

April 29. William Dollard, æt. 45. Operation R. E., v. G. Vn. $+3\frac{1}{2}\ \frac{20}{L}$.

September 21. William Dick, æt. 82. Operation R. E., v. G. Vn. $+3\ \frac{20}{C}$.

October 2. Joseph Cummins, æt. 81. Operation R. E., v. G. Removed a piece of ant. capsule. Vn. $+3\frac{1}{2}\ \frac{20}{C}$.

October 9. Chas. Robinson, æt. 68. Operation R. E., v. G. On grasping the iris he moved his eye with such force as to tear the iris from its upper ciliary attachment, causing some hemorrhage in the ant. chamber, which was checked by cold-water cloths on the eye. Clot removed, and a piece of the capsule was cut out. Vitreous came forward, and lens removed with wire loop. Vn. $+4\ \frac{20}{LXX}$.

October 19. Eliza Sharp, æt. 74. Operation L. E., v. G. All went well and eye bandaged. Fifteen minutes after, exquisite pain in the eye for a moment, then profuse intraocular hemorrhage. Lost.

October 20. Mary Ann Campbell, æt. 62. Operation R. E., v. G. Piece of capsule removed. Vn. $+3\frac{1}{2}\ \frac{20}{LX}$.

November 6. Isaac Peres, æt. 68. Operation R. E. After the corneal cut was made, the patient, by unconscious strain, dislocated

the lens in its capsule downward, and the vitreous was forced out. The lens in its capsule entire was delivered by the loop. Considerable vitreous lost. No iridectomy could be made, and iris healed in the corneal incision. Vn. $+3\frac{1}{2}\ \frac{20}{C}$.

November 13. Robert Keith, æt. 60. Operation L. E., v. G. Vn. $+3\frac{1}{2}\ \frac{20}{XL}$.

November 23. Mary Coleman, æt. 70. Operation R. E., v. G. Large piece of capsule removed. Suppuration of cornea took place same night, and eye *lost*.

December 18. Maria Earle, æt. 67. Operation R. E., v. G. Removed large piece of capsule. February 19, 1881. Post. capsule thickened, and was torn through this day with needle. Vn. $+3\frac{1}{2}\ \frac{20}{C}$.

January 8, 1881. Christian Plœtz, æt. 64. Extraction of lens R. E. after preliminary iridectomy of eight weeks. Vn. $+3\frac{1}{2}\ \frac{20}{CC}$.

May 17. David Rutty, æt. 71. Operation R. E., v. G. Considerable hemorrhage in the ant. chamber after iridectomy; stopped by cold applications, and clot removed by forceps, after which large piece of ant. capsule removed and lens extracted. Vn. $+4\ \frac{20}{L}$.

May 27. James Cosgrove, æt. 41. Traumatic, L. E.; operation, v. G. Iritis with closure of the pupil. Iridectomy four weeks after. Vn. $+4\ \frac{20}{CC}$.

June 23. Elizabeth Hopkins, æt. 74. Operation R. E., v. G. Removed piece of capsule. Vn. $+3\frac{1}{2}\ \frac{20}{C}$.

July 14. William Bell, æt. 29. Traumatic, L. E.; operation, v. G. Vn. $+4\ \frac{20}{XXX}$.

October 4. Owen Driscott, æt. 63. Operation R. E. Made section of cornea below to remove a synechia post. in iris at that point. Some little vitreous lost. Vn. $+4\ \frac{20}{CC}$.

October 6. Margaret Watson, æt. 77. Operation L. E., v. G. Removed a piece of ant. capsule. Cataract very dark brown. Post. capsule thickened, and was cut through six weeks after. Vn. $+3\ \frac{20}{CC}$.

October 18. Sarah Stapleton, æt. 81. Operation R. E., v. G.

Considerable hemorrhage in ant. chamber after iridectomy, checked by cold applications, and the clot removed. A large piece of the ant. capsule removed. After extraction of the lens, a small blood-clot remained on the iris, which was absorbed without causing any trouble. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{LXX}}$.

November 29. John Kirkland, æt. 66. Operation R. E., v. G. December 2. At 5 A. M., a chill for about a half hour; slight increase of temperature. No pain of any kind anywhere. Eye looked well. Again, at 6 P. M., another chill lasting fifteen minutes. Temperature, half hour after, 100°, no increase of pulse. Still no pain nor discomfort anywhere. December 3. Rested well during the night; no return of chill. At 3 P. M., I found the ant. chamber filled with blood; otherwise eye looked very well. There was only light perception, but no objects could be distinguished. December 8. No chills since the discovery of the hemorrhage in the ant. chamber. Absorption is taking place slowly. January 24, 1882. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{CC}}$?

January 7, 1882. John Kirkland, æt. 66. Operation L. E., v. G. Removed piece of ant. capsule. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{LXX}}$.

February 16. Mary Ann Cheeks, æt. 69. Operation L. E., v. G. Removed piece of ant. capsule. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{L}}$.

February 23. Philip Wallaur, æt. 52. Operation L. E., v. G. Removed piece of ant. capsule. Vn. $+3\frac{1}{4}$ $\frac{20}{\text{L}}$.

May 20. Sophia Robinson, æt. 70. Cataract R. E., Morgagni, eight years ripe; operation, v. G. Opened capsule at extreme upper periphery. Capsules remained clear, requiring no secondary operation. Vn. $+3\frac{1}{2}$ $\frac{20}{\text{XXX}}$.

The results of the operation and acuity of vision obtained:—

$\frac{20}{\text{XX}}$	in 4 cases.	$\frac{20}{\text{LXX}}$	in 22 cases.
$\frac{20}{\text{XXX}}$	in 13 "	$\frac{20}{\text{C}}$	in 42 "
$\frac{20}{\text{XL}}$	in 23 "	$\frac{20}{\text{CC}}$	in 11 "
$\frac{20}{\text{L}}$	in 17 "	$\frac{10}{\text{CC}}$	in 1 "
$\frac{20}{\text{LX}}$	in 3 "		

Occlusion of pupil from iritis in 3 cases.

Totally lost by sloughing of cornea, etc., 9 cases.

Taking vision to $\frac{20}{cc}$ as perfect success gives very nearly 92 per cent. as perfect.

Total loss 6 per cent.

Occlusion of pupil, which might have been improved had operation been consented to, $2\frac{1}{10}$ per cent.

The successful issue from operations for cataract in hospital practice, where the indigent class of people are only admitted, cannot be expected to be as great as among the better class as private patients, for the reason that, while one is generally a poorly nourished, worked out, and often dilapidated, weakened class of old creatures, the other is of better nourishment and physique, and less liable to inflammation and sloughing. Further, that in a hospital where all cases of eye diseases are admitted, and all kinds of operations on the eye and its appendages performed, there is naturally more danger of inflammation and sloughing from the germs of disease that will, in spite of all the cleanliness possible, in such institutions develop in the house, and apt to spread its infection. In private practice the patients are removed from such dangerous influences, and a greater percentage of success is always obtained.

After an experience of 897 operations, I am convinced, that, with the improved methods we now have, and if we could have the same immunity from infection in the hospital cases as we have in private practice, with careful examination of the health, disposition, temperament, and individuality of the patient, and proper judgment in the method and manner of operation, the percentage of perfect success would be at least 96 to 97 at all times.

In the operations in the hospital many different methods were tried and fortunately with success; but after all the preference was given to that of von Graefe, with the incision of the cornea nearer to if not in the corneal junction, instead of as far back as recommended by him. In cases of sluggish iris and inflammatory dispositions, the iridectomy was made some weeks previous to the extraction. This method has always been found advisable in such cases.

The manner of opening the capsule has been a study for years with all ophthalmologists, and many methods recommended. I have tried almost all the various suggestions, but have found none so successful and efficient as one that occurred to me in 1878, while demonstrating the operation on pig's eyes to one of my students. After making the corneal incision and iridectomy, I unintentionally

picked up a cystotome, the cutting edge of which had been dulled, and passed it in through the corneal opening down somewhat under the iris to tear the capsule, after the method of von Graefe. The point of the instrument entered the capsule, but instead of a vertical slit taking place on drawing it up, the capsule tore transversely on each side, and, remaining on the point of the cystotome, rolled or folded up with it as it was drawn toward the place of exit. Noticing this, the idea of removing a large piece of capsule by this method occurred to me; so, removing the cystotome, I grasped the fold of capsule with the iris-forceps, drew it out, and cut off a large piece—really the area of the pupil was removed. This experiment on the pig's eyes was tried a dozen times with the same result. I removed the cornea and iris of some so as to notice the rupture of the capsule, and invariably the transverse line occurred. With a very sharp cystotome, however, it did not occur, as it then cut its way up, making a vertical slit directly in the centre. The accompanying figures represent the action of the capsule and large opening obtained.

Fig. 12.

Fig. 13.

Fig. 14.

After these experiments on the animal eyes, I determined to try this method in my practice, and have had the most happy success in the great majority of cases. It invariably does well when the capsule is thick and tough, as in most cases of hard, ripe nuclear cataract of some standing. In some cases, however, I found that the capsule was so thin that it tore straight up. Where I suspect a very thin capsule, I have modified the rupturing of the same by adopting Knapp's mode of cutting it first at the periphery, and then making a vertical rent at right angles to the first by passing the sharp cystotome down under the iris, turning the fleam to the capsule, and cutting directly upward to the peripheral opening. In this way the edges roll back and avoid any necessity for secondary operation. I must say that, since adopting these two methods, I have not as yet been obliged to make a secondary operation in any case. There is no doubt that the removal of as large a piece as possible from the anterior capsule is a great desideratum in cataract operations, as it lessens the danger of inflammation and necessity often of subsequent operations.

Since the introduction of the antiseptic treatment of wounds, I invariably wash out the eye with a saturated solution of boric acid after the operation is finished, and wet the little square of cloth to be laid on the eye with the same solution before bandaging. I do this as a precautionary measure, but really cannot say that it has increased the percentage of success, but, as it can do no harm, and may do good, I will continue to do so till something better may be found.

Great care is necessary in the after-treatment, and most every surgeon has his own ideas and methods. I think that too much anxiety in relation to the result, with the too frequent meddling and handling of the eye after the operation is injurious. Rest and quiet are always advantageous to successful healing. Where no danger is suspected, I do not open the eye under twenty-four hours; and if vitreous has been lost, not for two or three days, so that the edges of the corneal incision shall have time to become well united. But cleanliness is naturally required, and gently washing the eye with warm water, or an antiseptic solution and a clean fresh bandage is necessary daily.

Fibro-Myxoma of the Optic Nerve.—From the very few cases of muco-fibroid tumors originating in and around the optic nerve in the orbital space that have been reported, it is naturally to be supposed that such must seldom occur, and upon looking over the literature find but few cases described. The rarity of these interesting cases is my excuse for presenting the following case in detail. In the whole course of my practice I have seen but two cases, and both of them I operated on in the same year.

March 29, 1872. Louisa McA., of Bridgeton, N. J., æt. 5, a bright intelligent little girl of healthy appearance, was brought to me by her father, with the history that his child had always been in good health, never having had anything the matter with her until about the first of that month, when sleeping on a lounge in their sitting room she awoke suddenly in a fright, and it was noticed for the first time that the left eye was more prominent than the right one. It was supposed at the time to be a strain of some kind, and simple applications were made thereto. The eye not receding after three weeks' attention, Dr. Bowen, the family physician, kindly sent her to me for examination.

On measuring the prominence of the eyeballs with my exophthalmometer (see *Archives of Ophthalmology and Otology*, vol. i. No. 2, p. 431), I found the left eye projected 5 mm. more than the other. The mobility of the eye was perfect. Cornea and refracting media

clear. Iris normal, pupil slightly dilated, and did not respond freely to the light. Vision was reduced to distinguishment of light only. Double vision was not noticed or remarked of before the loss of vision. The conjunctiva bulbi et palpebrarum were perfectly normal. There was no pain, nor had there been any in the eye or the head, nor around the orbit. No bruit could be heard when the ear was placed over the eye. Compression in the carotid artery did not cause any reduction of the ball. The eye could not be replaced by pressure.

Ophthalmoscopic Examination: The optic disk was much swollen; the veins were enlarged and tortuous, while the arteries were small and attenuated. Diagnosis: Optic neuritis with or from a probable retro-bulbar growth. Ordered iodide of potassium; and suggested that the case be carefully watched.

Dec. 28, 1872. The child was again brought to me with the exophthalmus much increased, and the ball turned downward and slightly outward. All the muscles except the rectus superior have perfect mobility. An utter impossibility to roll the eye upward. No pain in the eye. No injection of the conjunctiva and no lachrymation. Pupil more dilated and did not now respond in the least to light. The vision was entirely gone. Not the least ray of light could be distinguished when thrown upon the eye. The ball could not be pushed back into the orbit; it appeared to rest upon something firm.

Being now satisfied, from the general appearances and symptoms, that there was a tumor of some kind growing back of the eye, I advised early enucleation.

Whether from fear or ill advice, the little patient was not presented to me during the whole year of 1873; and not until Nov. 18, 1874, two years after my last examination, did her father bring her to me again. At this date the bulb is projected to its fullest extent; a hideous exophthalmus. The mobility of the rectus superior muscle is completely restricted, while that of the other muscles is slightly so. Vision nil. Media clear. Optic disk more abruptly swollen. On looking at the case, the ball itself appears enlarged and sclerotica thinned; the light passing through it readily, as is seen in an albinotic eye and that of a white rabbit. The lids appear stretched, and can just be closed.

I again recommended enucleation, but the father concluded to wait until the coming spring.

April 1, 1875. Returned for operation, as the exophthalmus had increased so that the bulb was almost out of the socket. The lower lid was drawn back of the equator bulbi. The pressure behind the ball was so great that the four straight recti muscles were stretched

to their extremest limit; so much so, that the drawing on the muscles seemed to flatten the ball and force out the parts lying between them. The ball felt soft, and had the appearance of softening and enlarging. By pressing the finger well into the orbit over the upper lid a hard substance could be felt behind the ball. The conjunctiva of the bulb and lids still normal.

The child herself being now desirous of having the eye removed, and the father consenting to the operation, she was promptly anæsthetized, and after the conjunctiva was separated from around the cornea and the muscles cut close to the sclerotica the ball popped well out, and the morbid growth could be plainly felt and described by the finger as immediately behind the eye, and encircling the optic nerve, extending back in the orbit to the foramen opticum, with the greater curvature directly upward. All the adhesions being separated from the tumor, the optic nerve was cut as close to the foramen as possible, and the eyeball with the growth attached to it removed. There was very little hemorrhage; and in a week the little patient went to her home, where she is still living, as reported to me by letter last week. (April 18, 1883.)

An examination of the tumor just after its removal showed that immediately behind the bulb the outer sheath of the nerve begins to enlarge, and covers a growth of a round oblong shape of 38 mm. in length and 25 mm. diameter at the thickest part, through which the optic nerve passes the entire length. At the posterior end of the growth the nerve is somewhat enlarged and of a softened appearance.

The consistency of the tumor was in general firm and compact, excepting on the top of the greatest curvature and diameter, where it felt soft and jelly-like. Under the outer sheath, which was thin and appeared normal, a few large vessels with branches were seen running over and into the growth.

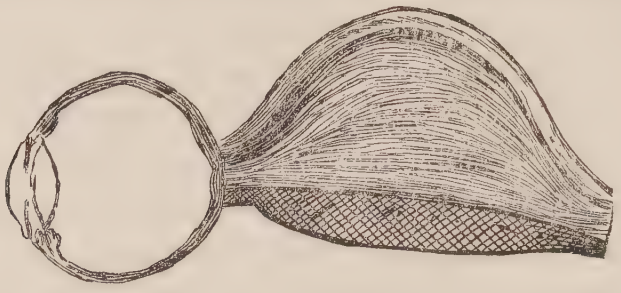
The whole specimen was placed in Müller's solution, and after becoming hardened was cut anteriorly and posteriorly through the vertical axis.

Fig. 15 shows the cut surface of one-half, in its natural size, which is now in my pathological collection. On examining the cut surface it is noticed that the fibres of the optic nerve begin at the anterior part to separate and spread out fan-like towards the widest part, and then gradually collect together again towards the posterior end. The fibres of the upper part of the nerve are much more extended and spread out, while the extreme lower ones are almost straight.

From one-half of the specimen longitudinal and transverse sections for the microscope were taken, which show the outer sheath is normal, but the inner one is greatly thickened, more especially

so in the lower part, where it reaches a thickness of 6 mm. The thinnest part, which is on the top or curved portion, measures 2 mm. Between this part and the nerve-fibres is quite a large separated

Fig. 15.



(N. B.—The cut has been reduced somewhat in size in the photo-lithographic process.)

space or cavity, with fibres crossing from one to another and filled with mucous tissue. This is the spot which felt so soft and jelly-like from the outside.

Throughout this thickened sheath openings of large vessels are to be found. The substance of the nerve has a normal appearance, but the fibres are separated by a connective tissue which extends out from the inner sheaths and penetrates through them; this connective tissue being thickest in the centre or larger part of the tumor. Throughout the whole tumor this connective tissue is thicker in some parts than others, and contains many cavities which are filled with a mucous tissue and bloodvessels.

The second case, although not operated on at the hospital, but in private, was also a little girl, and of the same nature, character, etc.; and as these cases are so very uncommonly met with, I feel that I am not trespassing in making a short description of it here.

Nellie B——, of Frankford, Philadelphia, æt. 3, was brought to me Oct. 22, 1875, with the left eye very prominent and eyelids forced open. The ball turned downward and slightly outward, with no mobility of the rectus superior muscle, while all the other muscles had perfect, free, ready action.

The pupil was dilated, and did not respond to light. Vision nil, media clear, and ophthalmoscopic examination gave the same picture as the case above described—disk prominently swollen, arteries attenuated, and veins dilated and tortuous.

It had only been seven months since it was noticed that this eye was protruding, and the appearances and symptoms being exactly the same as the first described case, I at once diagnosed a fibro-myxoma of the optic nerve, and advised enucleation.

Jan. 18, 1876. Eye more prominent, projecting 20 mm. from the orbit, while the right eye measured only 10 mm. Again advised

operative interference, which was done Jan. 24, 1876, kindly assisted by my friends Dr. Deacon, of Frankford, the family physician, and Dr. Hays, of Bellefonte, Pa.

At first it was my intention to try and remove these tumors and leave the ball to remain, as Knapp did in his case (see report in *Archives for Oph. and Otol.*, vol. iv., Nos. 3 and 4), but after making the opening in the conjunctiva and feeling the size of the growth, and finding the recti muscles stretched so that they were nothing but thin strings, I feared that they would not have power to contract so as to replace the ball in its proper position; and judging also from Knapp's case that there would not be perfect mobility, I thought it advisable to remove the lost eye with the tumor to relieve the difficulty that would be necessary in dressing it, as a child naturally would not allow any handling of the part after such an operation without an anæsthetic every day; and I think a well-fitted and matched artificial eye will look as well and have as much motion as the ball would have had if allowed to remain.

Cysts of the Lachrymal Gland.—Dacryops, or cysts of the lachrymal gland, is one of the most seldom forms of tumor found; and as Virchow, in his work on tumors, divides all morbid growths into three classes: 1st, those of extravasation and exudation; 2d, those of dilatation or retention; and, 3d, those of proliferation; this, according to de Wecker, belongs to that of the second group, as it is due generally to the stoppage of some of the excretory ducts of the gland, which cause retention of the tears and a gradual distension of that portion of the gland above the point of obstruction. Sometimes the tears can be pressed out of the cyst where the duct is not completely impervious, but only contracted from some cause. The cysts vary in size and form from the size of a pea to a hazel-nut or almond. They are much enlarged by anything that will cause a flow of tears. The method of treatment of these cases most recommended is to form an artificial opening in the conjunctiva, so that the tears in the cyst will flow out under the lids in the eye. In some few cases removal of the cyst entire has been successful, while generally the attempt to do so fails, and the operation is seldom performed, on account of the fear of leaving a fistulous opening which may be very obstinate and troublesome to cure.

As one of successful removal of the cyst, I present the following case of Thomas R., æt. 42, who came to my clinic April 10, 1875, with a cyst of the lachrymal gland of the left eye of the size of a hazel-nut. A bluish-pink elastic tumor was noticed under the upper lid in the outer part of the orbit. By pressure it could be brought

more into view. It fluctuated as if fluid was therein, and could be reduced by steady slow pressure. It had been noticed coming on for a year, and without pain or inflammation. By opening the lids with the fingers and pressing them well back, it could be brought out to the size of a hazel-nut. Its position, appearance, and feel left no doubt of its character of a cyst of the lachrymal gland, and, as the patient was very desirous of its removal, I determined to attempt its extirpation, or rather abscission. The operation was made by cutting it off back as far as was convenient without disturbing the main body of the gland. As soon as opened, a clear watery fluid escaped. The edges were brought together, and complete healing took place by first intention.

A Polypus of the Lower Canaliculus extending out of the Punctum.—August 15, 1872. Cecelia B., æt. 16, has been suffering for some time with an irritation of the left eye, a flowing of tears over the cheek, and the inner edge of the lower lid had become thickened and red, and for some time a fleshy growth appeared to be hanging therefrom. On careful examination a small polypoid tumor was noticed protruding out of the lower punctum. It was the size of a large hemp-seed, and the pedicle extending into the canaliculus had increased the calibre of both the punctum and canal to the size of a Bowman's probe No. 8. The canal was slit up carefully, and the attachment of the pedicle was about the centre of the duct on the lower part or floor of the same. It was dissected off with ease, and no return has taken place.

THE WEARING OUT OF VACCINE PROTECTION AND THE EFFICACY OF RE-VACCINATION.

By W. M. WELCH, M.D.,

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The immortal Jenner not only believed in the identity of smallpox and cowpox, but even entertained the fanciful notion that cowpox in the animal was the original or parent form of smallpox in man, and that the disease in man has been converted into its present severe and malignant form by time and unfavorable circumstances. This theory of course very naturally led to the conclusion that vaccinia was in reality smallpox communicated to man in its primitive and mildest form. Since the time of Jenner several experimenters have undertaken to prove the identity of the two diseases by an attempt to transform variola virus into vaccine in the body of the bovine animal, but the results have been very various. It seems very probable, however, that Thiele, Ceely, Badcock, and, more recently, Voigt, of Hamburg, have succeeded in the experiment, but the vast majority of experimenters have failed.

I do not propose to discuss here the vexed question concerning the identity or common origin of variola and vaccinia, but wish merely to direct attention to the fact that it was the belief in their identity which at one time led to the almost universal opinion, and which still prevails to a considerable extent, that vaccinia, like variola, can, as a rule, be communicated to a person but once in a lifetime.

Jenner very well knew, from his close study of smallpox for a period of thirty years and over, that second attacks of the disease were very rare; this fact, together, as he says, with his personal observation, led him to regard the protection conferred by vaccination as permanent; or, as he stated, as complete and permanent as that afforded by once undergoing smallpox. In his third publication (year 1800), he refers to this question by saying, "Some there are who suppose that the security from the smallpox obtained

through the cowpox will be of a temporary nature only. This supposition is refuted, not only by analogy with the habits of diseases of a similar nature, but by incontrovertible facts, which appear in great numbers against it." The same doctrine was authoritatively reiterated, in 1839, by a committee of the Provincial Medical and Surgical Association, which concluded their remarks on the continued protective power of vaccination by saying, "we hold it to be proved beyond all doubt, that the same laws which govern human smallpox apply, *mutatis mutandis*, to cow smallpox." The committee denied that vaccination, duly and efficiently communicated to man, loses any of its influence by time. Also, in 1843 (I believe it was), a very talented commission of Paris, expressly appointed to consider the question of permanent security, reported against the necessity for re-vaccination.

Such was the pleasing but illusory doctrine promulgated by Jenner, and long entertained by the profession; but time and greater experience have developed an accumulation of facts which lead to a very different conclusion. That vaccination in infancy, however perfect, cannot be depended on to afford protection against smallpox throughout the lifetime of the individual, is now amply attested by experience and proved by statistics. Nevertheless I am convinced that there are yet very many physicians who, partly from early teaching, and partly, perhaps, from an unwillingness to see vaccination shorn of any of its original splendor, still adhere to the belief that genuine vaccinia in infancy, followed by a well-defined and characteristic cicatrix, affords the greatest possible protection through life, and that re-vaccination in a person presenting such evidence of protection is unnecessary and not to be recommended. Now, I am fully convinced of the fallacy of this teaching, and propose to show as briefly as possible, *first*, that the susceptibility to smallpox, however thoroughly destroyed by vaccination, may subsequently return; and, *secondly*, that re-vaccination can be depended upon to exhaust this return of susceptibility to the disease.

It is evident from Jenner's own writings, that even in his day, an impression prevailed that the protective power of vaccination deteriorated in the course of time. Jenner, however, was unwilling to accept this view, notwithstanding the occurrence of post-vaccinal smallpox was frequently pressed to his notice. In the year 1809, Mr. Brown, of Musselburgh, broached the opinion that the prophylactic power of vaccination diminished as the time from the period of vaccination increased. His statements, however, are said to have been so vague that they made no impression on the public mind. But as time elapsed after the general introduction of vaccination,

cases of modified variola occurred with such increasing frequency, that the wearing out of vaccine protection was evident, though for a long time but few admitted the fact.

The first epidemic of smallpox that occurred after vaccination was in general use appeared in Scotland in 1818–19, and very many vaccinated persons suffered from the disease. This rather unexpected experience gave rise at the time to much discussion concerning the power and capabilities of the vaccine influence; but a detailed account of the epidemic visitation proved so conclusively the value of vaccination, particularly regarding its modifying influence over the disease, that the general confidence in the measure was not materially affected. I may add, that it was about this time that the term varioloid, or modified smallpox, was introduced and generally adopted.

Again, in 1824, the disease prevailed epidemically in Sweden, and also attacked a large number of vaccinated persons; of which number 103 died, "69 bearing good marks, and 34 less perfect evidences of the vaccine process." This epidemic extended to London, France, Italy, and Germany, and in each country many persons who had been *vaccinated in early life* took the disease.

The earliest effort on the part of the British government to establish a system of public vaccination was made on the Island of Ceylon. Salaried vaccinators were scattered over the island, and so successful were their labors, that for a number of years it was believed the experiment of exterminating smallpox by vaccination had been successfully made in that colony. But in 1819 an epidemic of smallpox of great virulence broke out and overspread the island; a second occurred in 1830; a third, in 1833; and a fourth, in 1836. In each of these epidemics a large number of persons who had been vaccinated in infancy or childhood, and trusted to it for their security, suffered from the disease. In the third epidemic, nearly 75 per cent. of the cases occurred among those who had been previously vaccinated.

From 1824 to 1835, several epidemics of smallpox prevailed in Denmark; "yet in no country in Europe," says Gregory, "has more attention been paid to the practice of vaccination, both as respects the numbers submitted to the process, and the purity of the lymph employed." But, notwithstanding so great efficiency in the work, during the period just mentioned, 3839 cases of smallpox occurred in Copenhagen alone; and of this number, 3093 cases, or more than 80 per cent., occurred among persons who had been vaccinated in early life. It is but fair to state, however, that the

death-rate among this class of cases was very low—being only 2.13 per cent.

Among the most valuable statistical data bearing on the question under discussion—valuable, because there is no room to doubt the reality and efficiency of previous vaccination—are those collected in the British army from 1834 to 1838 inclusive. The regulations of the army required every individual connected therewith to be thoroughly vaccinated, excepting those only who had had smallpox; but re-vaccination was not then enjoined. The average strength of the army during this period was (including men, women, and children) about 105,000; of this number, 1025 were attacked by smallpox, and 122 died, giving a death-rate of 11 9 per cent.

The statistics of smallpox hospitals show that a large proportion of the cases of the disease occur among persons vaccinated in early life. By dividing twenty-five years (1826 to 1850 inclusive) of Gregory's service at the smallpox hospital of London into quinquennial periods, we find as follows: at the first period, 1262 cases were admitted, of which 34 per cent. were post-vaccinal; at the second, 1331 cases were admitted, of which 36 per cent. were post-vaccinal; at the third, 1763 cases were admitted, and 41 per cent. were post-vaccinal; at the fourth, 1643 were admitied, and 43 per cent. were post-vaccinal; at the fifth period, 1780 cases were admitted, of which 52 per cent. were post-vaccinal. This shows a gradual and well-marked increase of post-vaccinal smallpox; the proportion of such cases having increased at the fifth quinquennial period 18 per cent. over the first. According to Marson, the number of admissions into the London smallpox hospital, from 1855 to 1865, was 7326, and 78 per cent. of these cases occurred after vaccination. In my own experience, during the great epidemic of 1871 and '72, 2377 cases were admitted into the Municipal Hospital of Philadelphia, and of that number, 68 per cent. occurred in persons vaccinated in early life. During the recent epidemic—1880, '81, and '82—there were 1659 admissions, and 54 per cent. of these were post-vaccinal cases. By comparison, we find the proportion of this class of cases to be 14 per cent. less during the late epidemic. The explanation of this is, I think, that re-vaccination was more extensively employed then in Philadelphia than ever before.

These statistics are amply sufficient to show how very frequently persons vaccinated in infancy or early childhood subsequently contract smallpox; far more frequently, indeed, than do second attacks of the disease occur, which, in my experience, are exceedingly rare. And now I shall proceed to show still further that the deterioration of vaccine protection is progressive, increasing up to a certain

period of life with the distance of time from the primary vaccination. To prove this, I shall make use of statistics showing the relative numbers and ages of persons attacked by smallpox after vaccination; also showing the ratio of deaths to the numbers attacked at the various ages.

The following table contains such data collected by three different observers:—

Ages.	Gregory, of London.		Heim, of Wirtemberg.	Mohl, of Denmark.
	Cases.	Deaths.	Cases.	Cases.
Under 5 years of age . . .	0	0	40	14
From 5 to 10 years . . .	5	0	68	102
" 10 to 15 " . . .	25	0	186	173
" 15 to 20 " . . .	90	6	275	187
" 20 to 25 " . . .	106	16	239	156
" 25 to 30 " . . .	55	8	172	19
" 30 to 35 " . . .	13	1	75	2
Above 35 years of age . . .	4	0	...	...
Total	298	31	1055	653

The next table contains a record of my own experience in the same direction. The 2907 cases of post-vaccinal smallpox therein recorded were observed between January 1, 1871, and May 1, 1883. I have classified the cases occurring in persons under the age of puberty according to the quality of the vaccine cicatrices.

		Cases.	Deaths.	Percentage of deaths.
Under 5 years of age	Good cicatrix	1	0	...
	Fair "	4	1[1]	...
	Poor[2] "	5	1	...
	Total	10	2	...
From 5 to 10 years	Good cicatrix	11	0	...
	Fair "	9	0	...
	Poor[2] "	26	8	30.73
	Total	46	8	17.39
From 10 to 15 years	Good cicatrix	45	2	4.44
	Fair "	18	2	11.11
	Poor[2] "	36	4	11.11
	Total	99	8	8.02
From 15 to 20 years of age		388	47	12.11
" 20 to 25 " "		745	96	12 88
" 25 to 30 " "		580	92	15.86
" 30 to 35 " "		356	64	17.97
" 35 to 40 " "		249	51	20.48
" 40 to 45 " "		154	38	24.67
" 45 to 50 " "		105	22	20.95
50 years of age and upwards		175	63	36
Grand total		2907	491	16.89

Certainly, proof more conclusive than that contained in these tables is not needed to show the fallacy of the doctrine of the unvarying prophylactic power of vaccination. It is evident that thorough vaccination at first confers, in almost every instance, complete protection against smallpox; but in the course of time, particularly as children approach to and pass beyond the age of puberty, there is a very great deterioration of the vaccine protection. Gregory, than whom but few have had greater facilities for observation, says that smallpox is very seldom taken by vaccinated children under eight years of age, that he has never seen more than three or four instances of such occurrence, but that we are com-

[1] This case, not at all severe, occurred in a very delicate child—a foundling—one year old.

[2] Doubtless, very many cases classified in the table under the headings of "poor cicatrix" were never successfully vaccinated.

pelled to confess that later in life vaccine protection diminishes, and, I would add, entirely disappears in a large proportion of persons.

It is true that quite a large number of the cases of post-vaccinal smallpox reported by Heim and Mohl occurred in children under ten, or even under five years of age; but, judging from Gregory's and my own experience, I think it safe to assume that all such cases were very mild—probably so mild as not to endanger life, unless there was a previous condition of broken health, or the vaccination had been carelessly and inefficiently performed. I have recorded in the table one death as having occurred in a child under five years of age, who had been vaccinated, and showed a fair cicatrix. This child, one year old, a foundling from the almshouse, had only a very mild form of varioloid, but was previously so feeble and delicate that the most trivial ailment was all that was needed to terminate its miserable existence.

The tables, while they certainly show a very gradual increase in the number of cases of post-vaccinal smallpox during the earlier periods of life, prove that the maximum number occurs at the periods immediately following puberty; thus indicating that at this eventful epoch some change is brought about in the animal economy that lessens or entirely destroys the protective influence previously exerted by vaccination. This may be the case even when the vaccination had been most thorough and satisfactory. Forty-four per cent. of all the post-vaccinal cases which have come under my observation presented good cicatrices; twenty-one per cent. "fair," and thirty-five per cent. "poor" cicatrices. I have seen smallpox occur in persons presenting more than twenty typical vaccine marks; and I have known death to occur when as many as twelve such marks were present. The sooner, therefore, the profession and the public fully recognize the necessity of re-vaccination in all persons at the age of puberty, if not earlier, regardless of the quality or number of their vaccine scars, the sooner shall we succeed in the noble work of preventing smallpox, or of cutting short epidemics of the disease, which now so frequently pervade our country.

If, then, vaccination of the highest degree of excellence fails to confer permanent protection against smallpox, how much less must be the protection that comes from vaccination of an inferior character! That there are various types of vaccinia, depending on the quality of the virus used, there is no room for doubt. The deterioration or diminished efficacy of vaccine virus by long humanization, is a question which has been variously regarded by different observers; being accepted by some as an axiom, and rejected by others as a mere fancy. For myself, I have no hesitation in saying

that it is my belief that vaccine virus not only loses much of its vigor through a long series of human transmissions, but that it also suffers in the durability of its prophylactic power. Jenner maintained that, in order to secure the highest degree of prophylaxis, vaccinia should pursue a certain definite course. He announced as a law that, coincident with the development of the areola, there should be a very decided febrile reaction. Now, doubtless, most all careful vaccinators have noticed that vaccine virus very far removed from its original source does not, as a rule, produce any well-marked febrile reaction, even when several insertions are made —a fact of vast importance if the dictum of Jenner is based on anything like truth.

As long ago as 1836, Bousquet, writing on the "Cowpox of Passy," which had just been discovered, called attention to the very great difference between the course and duration of vaccinia induced by the newly-discovered virus and that induced by the old—the latter at that time probably represented thirty-eight years of uninterrupted human transmission. Bousquet says, that he who recognizes no difference between the action of virus of long humanization and that of recent origin must have been satisfied with the customary visit to the patient on the seventh or eighth day after the operation, for after that time the two viruses differ very markedly. Those who take the trouble to follow the vesicles to the end must notice that the areola of the old virus appears the earlier, and that of the new follows after an interval of one to two days The areolar inflammation in the first case is light and evanescent, and in the second intense, extended, and phlegmonous. The disease is, therefore, not only more active in the latter case, but its duration is of much longer continuance.

We are informed by Jenner and all the earlier investigators of vaccination, that vaccinia requires for its fullest development and completion, not less than twenty-one days. For example: The vesicle appears at the end of the fifth day after insertion of the virus; the areola, at the end of the ninth or beginning of the tenth day; desiccation of vesicle is not completed until the seventeenth day; and the crust never falls off spontaneously, nor can it be easily removed, before the twenty-first day, and very often not until the end of the fourth week. Vaccinia induced by the Passy cowpox at first answered to this description; but, in 1844, it was found that the drying of humanized Passy vesicles took place on the fourteenth day instead of the seventeenth, having lost in eight years three days of their ripening period. The vesicles of the Jennerian stock of virus after thirty-nine years of uninterrupted human transmission were

found to undergo desiccation in twelve days, losing in that time five days of their maturing period. Dr. Martin, of Boston, says that, in 1859, he obtained from Ceely, a supply of long-humanized lymph, which he continued to propagate for several years, and that the course of the disease induced by this virus was usually eleven days, counting from insertion until the crust would fall off, or could be readily removed. He also says, that for nearly ten years he propagated virus which he received from the National Vaccine Institution of Great Britain, and that "this virus induced a disease, the duration of which was fourteen days, very exactly, from insertion till fall of the crust." Doubtless, the virus in general use in this country for several years previous to the introduction of animal lymph (1870) was of this "stock." When a public vaccinator in Philadelphia, from 1867 to 1870, I found it necessary to visit my patients for the purpose of collecting crusts for future use on the fourteenth or fifteenth day after inserting the virus; if I delayed my visits to a later day, my harvest of crusts would prove very scanty.

The character of the vaccination which a person has received may, as a general rule, be known ever afterwards by the appearance of the vaccine scar. Vaccinia of a duration and intensity at all approaching to the typical standard is quite sure to be followed by a permanent scar, as distinct and well-defined as if stamped by a sharply cut die. On the other hand, vaccinia of short duration—the vesicle involving only to a slight extent the dermal tissues—produces a superficial and ill-defined scar. It is evident, therefore, that the various types of vaccinia resulting from virus of different degrees of humanization must produce a great variety of scars, differing from the proper standard in proportion to the number of removes of the virus from its original source. It is not difficult to prove that, as a general rule, there is a direct relation between the quality of the vaccine cicatrices and the prophylactic power which exists. This is a practical point of so great importance that it cannot be too strongly emphasized, nor too widely known.

It is true that vaccinia of short duration, such as I have described, will destroy the susceptibility to smallpox; and when I say this, I honestly express the result of my own experience. Furthermore, I would say that, for vaccination after exposure to the variola contagion, my experience leads me to prefer humanized virus, somewhat remotely removed from the heifer, on account of the more speedy development of the vesicle and the earlier appearance of the areola, the latter being evidence of systemic impression. But the point I wish to emphasize is, *that the protection which results from vaccinia*

of short duration is not so durable as that which results from vaccinia of a perfectly typical character. Or, in other words, *the prophylactic power exerted by long-humanized virus is less durable than that exerted by bovine lymph, or lymph of recent humanization.* To prove this statement, after what has been said about the peculiarities of the two viruses, it is, I think, only necessary to show that smallpox is less modified and more fatal among persons showing poor, or even fair vaccine scars, than among those showing good scars. Now, according to my experience, the death-rate among patients having good cicatrices has been 9 per cent.; among those having fair cicatrices 16 per cent.; among those having poor cicatrices 27 per cent.

The Efficacy of Re-vaccination.—Having shown the necessity for re-vaccination, it yet remains to say something about its efficacy. But I have already consumed so much time that I cannot do more than refer very briefly to this topic.

The question is often asked, What constitutes successful re-vaccination? This is a question about which there is some diversity of opinion. Many physicians believe that unless the vesicle and areola observe the course of true and typical vaccinia, the effect is merely local, and without any prophylactic value. But, certainly, there is no more reason why we should expect the vaccine disease induced by re-vaccination to be true and typical than that we should expect smallpox after vaccination to be true and typical. If we have modified smallpox or varioloid after vaccination, then we should have modified vaccinia, or vaccinoid. And as varioloid differs in various degrees of severity from true smallpox, so should vaccinoid differ from true vaccinia. This I believe to be the case; and, if so, it then follows, that, as varioloid gives protection against a recurrence of smallpox, so does vaccinoid exhaust whatever susceptibility to the disease may be present.

After citing numerous instances of protection by re-vaccination, and without a single failure, even under epidemic influence, Bousquet truly says, "there has not been an epidemic which has not proved, at the same time, the virtues both of vaccination and of re-vaccination." He further says, "the success of re-vaccination is at the same time the effect and proof of the wants of the system"—"when it succeeds, it not only proves that the protective power of vaccination is diminished, but it supplies a remedy for this diminution."

As to the age at which re-vaccination should be advised, but little need be said here, as the tables which I have presented clearly decide that point. It is evident that it is often required at ten years of age, and that the necessity for it very greatly increases at fifteen

years. In times of epidemic prevalence it should be practised earlier.

Some of the earliest and most conclusive proof of the value of re-vaccination is furnished as the result of experience in the Wirtemberg, Bavarian, and especially in the Prussian armies. Among 14,284 re-vaccinated soldiers in Wirtemberg, only one case of smallpox occurred in five years; and only three among 26,964 re-vaccinoted civilians. During three severe epidemics of smallpox in Copenhagen, between the years 1828 and 1835, not even a single instance of varioloid was observed among any who had been re-vaccinated. During an epidemic at Heidelburg, in 1843 and 1844, while the vaccinations most successfully performed very frequently failed to protect those older than ten years, yet in no single instance was a re-vaccinated person attacked. In a dreadful epidemic of smallpox which a number of years ago desolated Liege, it is said that none of those who underwent re-vaccination suffered from the disease.

It is due to Germany to say that vaccination is nowhere more carefully and thoroughly performed than in that country. It was there that re-vaccination was first practised, and has ever since continued to be systematically performed. Almost every infant is vaccinated within the first year of life, and re-vaccination is usually done about the twelfth year. In addition to this, every person entering the army is again vaccinated, and if this fails it is repeated again and again until the vaccinal effect is produced, or the surgeon is satisfied that the person is insusceptible to vaccinia. It is not only evident from this that the German army is well protected against smallpox, but the fact is proved beyond all question by official statistics. During the Franco-Prussian war smallpox prevailed to an alarming extent, and both armies were freely exposed to the contagion; but the loss by death from that disease in the German army was only 263 men, against 23,468 in the French army; and the latter army was at no time much more than one-half the size of the former. In joining the French army, vaccination was not a prerequisite, and re-vaccination was in no wise compulsory.

Among the most conclusive proofs of the efficacy of re-vaccination is that furnished by statistics of smallpox hospitals. After thirty years of labor at the hospital of London, Marson asserted that but few patients were admitted who had been re-vaccinated with effect, and that these few had varioloid in a very mild form. During his connection with the hospital, he re-vaccinated all the nurses and servants, who had not had smallpox, on their coming to live at the hospital, and *not one of them* contracted the disease. At a time,

however, when a large number of workmen were employed about the hospital, most of them consented to be re-vaccinated, but there were a few who declined; of the latter two took smallpox, while the former enjoyed perfect protection.

The medical superintendents of the several smallpox hospitals of London report that during the period from 1876 to 1879, when 11,412 cases of the disease occurred among vaccinated persons, *not one case was known to occur in any person who had been successfully re-vaccinated.* Of the nurses and servants employed at the various hospitals, numbering in all about 1000, some half dozen only contracted the disease, and these for some cause or other had escaped re-vaccination before entering the wards.

My own experience in hospital work, which, as regard time, comprises a period of more than twelve years, entirely agrees with that of the observers just quoted Only very few patients during that time have been admitted into the hospital under my charge with varioloid who presented evidence of having been successfully re-vaccinated, and these few have had the disease in so mild a form that death has not occurred in a single instance. During my service no person entering the hospital in any official capacity—as resident physician, steward, matron, nurse, laundress, or other employé—who had taken the precaution to be re-vaccinated before entering on duty, has suffered from smallpox in any form whatsoever. But, on the other hand, I have seen a few employés in whom re-vaccination was for some cause omitted, become infected by the disease.

From the facts just presented the conclusion is inevitable, that if vaccination were efficiently performed in infancy, and re-vaccination at puberty, if not earlier, we would then begin to realize the truth of Jenner's assertion, viz., *that vaccination is capable of extirpating smallpox from the earth.* But whether vaccination will ever be so universally and wisely employed as to confer on mankind its greatest possible benefits is doubtful.

OBSTETRIC NOTES.

By R. LOWRY SIBBET, M.D.,

CARLISLE.

The inexperienced graduate in medicine enters upon this department of professional work with a greater degree of trepidation than any other. As surgeon he may call in an assistant, as physician he may deliberate or prescribe a placebo, but as accoucheur he must be prompt. He has no time to refer to books, nor can he, except in rare cases, ask for a consultation. For these reasons, and others which might be given, he has need for all the information he can obtain from his preceptor, from lectures, and from carefully prepared works on the subject before entering the lying-in chamber.

This paper, specially addressed to the young practitioner, is based upon one hundred consecutive cases of confinement. To show the importance of careful study, as well as the percentage of accidents to the mother and to the child, this number will answer our purpose. The statistics are as follows:—

Number of confinements	100
Primiparous cases	22
Severe labors	7
Rapid deliveries	5
Instrumental deliveries	6
Placenta prævia	1
Adherent placenta	1
Inversion of the uterus	1
Unusual hemorrhage	4
Rigid perineum	2
Rupture of perineum (slight)	1
Puerperal convulsions	1
Puerperal mania	1
Case of twins	1
Mammary abscess	1
Number of deaths	1

The children.

Number of males	53
Number of females	48
Cephalic presentations	96
Left and right occipito-anterior positions	94
Left and right occipito-posterior positions	2
Foot presentations	2
Breech presentation	1
Left elbow presentation	1
Both hands presentation	1
Cord around the neck causing death	4
Craniotomy	1
Decapitation	1
Syphilitic taint	2
Deaths in utero, or soon after delivery	11

These results of one hundred consecutive cases, in a town and country practice, may surprise some who are not in the habit of noting the particulars of each case as it occurs, whether important or unimportant. I confess that it requires an effort to state before you that even one per cent. of mothers and eleven per cent. of children died in these cases of confinement. It is well known that many physicians never speak of cases which have terminated unfavorably in their practice. But how can we be useful to one another if we withhold the essential facts? How can we advance medical science if we do not give the statistics correctly? If practitioners would take notes of their cases, and present them, as here indicated, in groups of one or more hundreds for publication in our *Transactions*, very valuable information would be secured. The percentage of accidents would be seen at a glance; inspection and comparison would not be so difficult; the study of statistics in the aggregate would be less irksome.

The most important of these cases may be given in brief; others may be referred to.

The first I shall mention is the case of placenta prævia; both hands presented. It was a second child. With the use of anæsthetics and by version delivery was effected. There was hemorrhage before and after delivery. With the use of restoratives and careful watching the mother rallied: the child was dead. Profuse ptyalism followed with the absence of the mammary secretion. Dr. G. W. Reily assisted.

A case of very severe labor occurred with normal presentation but contracted superior strait. It was also a second child. I used anæsthetics and delivered with the Hodge forceps a large lifeless

child. I immediately placed it in a bowl of hot water, and used whiskey on the bruised scalp. With perseverance in the use of hot water and rubbing, a bright crimson color came to the face and limbs, and respiration was established. The mother and child are living and well.

Another case of severe labor did not terminate so favorably. A young woman of lymphatic temperament, primiparous, distant in the country, and neglected by her husband and friends, took, some weeks before her time, diabetes insipidus, which produced eczema of the vagina and pudendum. During these weeks she had neither sleep nor rest. When I was called there was no time to do much for either complaint Tedious labor came on, and as soon as possible I used anæsthetics, and with great effort partially delivered the head of a large child, using the Hodge forceps. I cut the cord, which was twice around the neck, and applied a noose, by which an assistant and myself made traction until delivery of a dead child was effected. The placenta was removed without difficulty. Two hours afterwards the mother died from exhaustion.

The case of decapitation, which was also primiparous, may be given. The feet presented. The midwife, making traction too soon, perhaps, succeeded in delivering a large child except the head. Late at night I was sent for, and had to ride three miles. I found a rigid perineum and an unyielding coccyx. It was impossible to produce rotation with the blunt hook, the occiput being under the pubis, so I removed the body with the small blade of my pocket-knife; still I could not produce rotation. I then resorted to a blacksmith in the neighborhood, and succeeded in extemporizing a pair of forceps, with which I produced rotation and removed the head.

The case of craniotomy may be mentioned. The face presented behind the pubis. The head lodged in the superior strait, and I found it impossible with the strong contractions to produce rotation. To save the mother, I punctured the head, and used the craniotomy forceps. The child was removed with great difficulty. Dr. S. P. Zeigler assisted.

The other case of face presentation resulted more favorably. It was primiparous, and the labor severe. Instruments were not used. The mother and child are living and well.

One of the cases of rapid delivery referred to resulted in inversion of the womb. The mother had no time to get into bed, and knelt at the side of it. The cord was short. In this condition I found her. There was profuse hemorrhage, but the patient rallied. Steady

and firm pressure upon the fundus restored the womb to its normal condition.

Another case of rapid delivery produced a slight rupture of the perineum. Fifteen months previous, an extensive rupture had occurred, which had not been recognized by the attending physician. The patient had suffered during this time. I removed the epithelium, and restored the perineum, using three large silk sutures. Dr. S. P. Zeigler assisted.

In the case of left elbow presentation, version was produced. The child died soon after delivery. Dr. E. A. Grove assisted.

These cases are sufficient to lead the young practitioner to reflect upon the responsibility of the work in which he is about to engage. His first duty, after a careful study of the subject, is to be prepared for any emergency. In a country practice he should carry with him a strong pair of obstetrical forceps, and if distant from professional assistance one or more pairs of craniotomy instruments. These should be reserved until the life of the mother is in danger. It will be noticed that I used instruments only in six per cent. of cases, and I do not now think that I should have used them more frequently. Some practitioners use the obstetrical forceps in one-third or one-fourth their cases, but I cannot endorse this practice. If they would set forth the results of their work, as indicated in this paper, we would be able to judge better of the propriety of making such frequent use of them. The lancet and the hypodermic syringe should always be carried, though, in these one hundred cases, I had no use for the former. In plethoric cases of puerperal convulsions the lancet should be used first. In the case referred to I used the syringe and the sulphate of morphia, and with good results. The repetition of the dose within five or six hours should always be in diminished quantities. Sulphuric ether and chloroform, in the proportion of two or three parts of the former to one of the latter, by weight, are indispensable. A small piece of sponge saturated with the mixture and placed in the hand of the female is convenient and safe, and is generally sufficient. Should the anæsthetic produce jerking of the limbs, it would be well to discontinue it, as I have seen one case of this kind not included in these cases which resulted in tetanus and death. Ergot has long been regarded as a necessary part of the accoucheur's armamenta; but in my hands it has had an uncertain value. In cases in which I desired its reputed effect, it has not given satisfaction. It is probable that in many cases its action is slow.

Thus prepared for professional work, how should the practitioner behave at the bedside of the parturient female? To this question

there is but one answer: He should be a gentleman. He should be polite, agreeable, and hopeful. He is called on business of a most important character, and for the time being he is master of the house. Inappropriate conversation should not be indulged in; the reading of a newspaper may betray an indifference which might not be pardoned. On the other hand, there may be too much attention. Digital examinations are not to be made more frequently than are necessary to determine the progress of labor.

The exposure of the female, except in extreme cases, should be avoided. The efforts which have been made by some practitioners to overcome the supposed rigidity of the perineum by the introduction of one or both hands into the vagina, before the descent of the head into the pelvis, should be limited to the half-bred Indians of New Mexico, among whom this practice seems to have originated. Nor does it appear that the support of the perineum, recommended by more respectable authority, is of much account. We should rather assist nature in her efforts to expel the product of conception, unless there is great danger of a rupture. Inunction and rubbing when the head of the child presses firmly upon the floor of the pelvis may be useful if the parts are rigid, and in extreme cases a lateral incision of the vulva might be made. When the head has passed into or through the inferior strait there should be no delay. The accoucheur may pass his forefingers and thumb around the neck of the child and make steady and firm traction. It may require the strength of a strong arm. A short cord twice around the neck may make delivery more difficult. Three things may call for immediate attention, syncope, contraction of the womb, and the respiration of the child. The application of cold water with the hand is a good remedy for all. The placenta should be removed as soon as the condition of the mother will allow of it; in case of hemorrhage it should be removed immediately. A firm contraction of the womb should be secured before leaving the patient. Her soiled clothing should be drawn away and a binder applied if she has suffered much and she desires it. The babe should be made comfortable in a soft woollen slip, long enough to protect the arms and the legs. Cows' milk and no other food except the mother's milk should be given to it.

A few words in conclusion on two points which belong rather to the after-treatment. Puerperal inflammation is a serious affliction which carries off a large percentage of mothers annually. I have seen this contagious disease in the hospitals of Europe, where it has prevailed to an alarming extent, in the practice of others, and in three cases of abortion produced as I believe by the females

themselves, and one of them died. My senior preceptor, highly respected and honored, gave me the particulars, in one of his lessons of instruction, of three cases that he lost in less than a month by this disease. He changed his clothes and washed himself from head to foot. He had a large practice at the time; but he had no more cases of puerperal peritonitis. I have since known a respectable practitioner to lose also three cases by this disease within twenty-four days. He too had a large obstetrical practice. Let us note also the fact, as given by Dr. Tanner, that forty cases of this fearful malady occurred in the practice of one obstetrician and his student as an epidemic (so-called) in England. We need not look for the cause of this disease in the bacilli and micrococci of Pasteur and Lister and Koch (strain at a gnat and swallow a camel), when the causes are obvious and easily removed. The busy accoucheur napping in his closed carriage between calls, or lolling upon his lounge in his office, is most likely to drop into careless and filthy habits. But let me say to the young practitioner, that you may be caught sleeping; you may have made an autopsy; you may have dressed some foul ulcer; you may have attended a case of erysipelas on the day previous to your call to the lying-in chamber. Would you obey such a call? There is a strong temptation. I have declined and sent for another physician.

Agreeing that puerperal inflammation may spring up independent of any of the causes referred to and extend to other adjacent organs, what means shall we use to prevent it? The old treatment of a hundred years ago—a dose of castor oil on the third day—is a miserable delusion. At no time have we greater need for our knowledge of pathology, physiology, and therapeutics, and less need for routine practice, than in the treatment of the parturient female.

It has been my practice to administer, from the first hour of labor or as soon as called, cholagogues and anodynes, in small quantities, often in very small quantities. These may be given in an agreeable form, in powders, in granules, in parvules, or in pellets. There should be no time fixed for the movement of the bowels. To give a compound cathartic pill or two immediately after delivery might be the best thing to do. It would certainly help to arrest any tendency to inflammation of the uterus or the mammary glands, by relieving the organs of secretion and the distended bloodvessels. The natural channels which carry away the excrementitious products of the body should certainly not be closed when several important organs are undergoing such rapid change.

Abscess of the mammary glands would very rarely occur if evacuants were more freely used instead of tonics and stimulants.

In the case referred to, the mother of the parturient female thought it would not be necessary to make a third visit, and undertook the treatment by castor oil. The result was that several extra visits were made by myself and a neighboring physician.

This brief paper is respectfully addressed to the younger members of the profession with the hope that some at least will be encouraged to collect statistics, and to present them as herein indicated for publication. The statistics would be the more valuable to the profession if collected from a private practice.

ARTIFICIAL INFANT ALIMENTATION.

By HUGH HAMILTON, M.D.,
HARRISBURG, PA.

The inattention artificial infant feeding receives, and the valueless foods for sale, have suggested a scientific basis for such diet.

The explosive cry of the newly-born, the heaving trunk, the flattened nostril, prehensile upper lip and pouting lower one, form a most complete mechanism for the hydro-pneumatic problem of primitive existence through which the infant must pass.

The remarkable changes in the circulatory apparatus, the new function of respiration, and the assumption of assimilation by the digestive tract are subjects that, contemplated in detail, afford a fertile field for investigation.

The processes in the alimentary canal form the main points in our thesis, namely, Artificial Infant Alimentation, directing our thoughts to the development of these functions in infancy, the progressive natural diet offered for its nourishment, and the artificial aliment best adapted to the essential conditions of natal life.

The saliva being excreted slowly, of an alkaline reaction, its diastasic power is therefore limited.[1]

Table I.—*Excretion of Infant Saliva.*[2]

Age.	Time.	Amount.
21 days.	30 minutes.	15 grains.
56 "	2 "	15 "

Table II.—*Conversion of Starch to Sugar by Adult Saliva. Equal amounts.*[3]

Source of starches.	Time.
Potatoe	2 to 4 hours.
Pea	1 " 2 "
Wheat	½ " 1 hour.
Barley	10 " 15 minutes.
Oat	5 " 7 "
Rye	3 " 6 "
Corn	2 " 3 "

[1] A. Jacobi, M.D., Med. News (Phila.), xl. 173. See article by J. M. Keating, M.D., Boston Med. and Surg. Jour., cix. p. 31.

[2] Ibid.

[3] Ibid.

Recent experiments with adult saliva show that its immediate convertive action upon starches does not cease at once in presence of dilute muriatic acid and the gastric juices.[1] The stomach juices are but partially excreted in infants, only those able to break albumins into readily assimilated forms.

TABLE III.—*Infant Assimilation, as shown by the proportion of blood-corpuscles in infants aged 15 to 20 days.*[2]

No. meal.	Time.		Corpuscles.	
			White.	Red.
1	First	Before meal	1	150
		½ hour after meal	1	155
		3 hours after "	1	145
2	Second	½ hour " "	1	100
		3 hours " "	1	142
3	Third.	½ hour " "	1	92
		3 hours " "	1	158

Tables III. and IV. illustrate the rapidity of assimilation, and the equally energetic demands of the vigorous vitality of a babe upon its blood stream.

TABLE IV.—*Proportion of Blood-corpuscles in Infants 2½ to 3 hours after meals.*[3]

Age in days.		Milk diet.	
		Mother's. Human red corpuscles.	Cow's. Human red corpuscles.
½ to 3	To one white corpuscle.	135	122
4 " 7		157	135
8 " 14		165	140
15 " 30		173	145
31 " 60		180	153
61 " 90		185	160
91 " 120		191	172
120 " 150		210	180

The liver is slow to assume its functions, as illustrated by the icterus of early babyhood, and that bile is not excreted quickly is known by the constipation then frequent. At the age of four or five months the pancreas begin to secrete trypsin.[4]

[1] On Diastatic Action of Saliva, R. H. Crittenden and W. L. Griswold, Amer. Chem. Journ., Balt., iii. 305.

[2] Amer. Journ. Obstet. (N. Y.), Oct. 1882. Demé.

[3] Boston Med. and Surgical Journ., 1883, cviii. pp. 121–145.

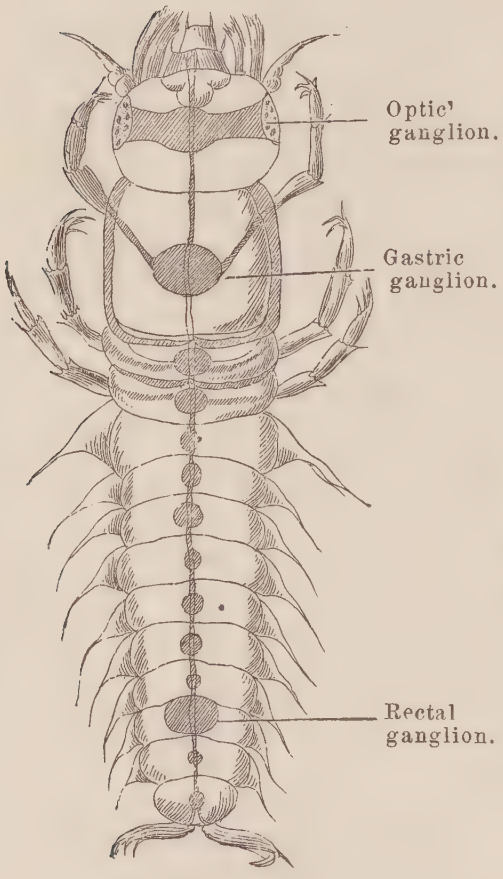
[4] Pfluger's Archives, xxx. p. 295. Alex. Herzen, " Ueber den Einfluss des Miltz auf die Bilding des Trypsins (in dogs).

The bowel juices are alkaline if normal. When teething begins, the liver, pancreas, and spleen are sufficiently swollen to draw attention to the abdomen, the bile is then rapidly secreted, causing numerous healthful evacautions, to the relief of the now plethoric sensorium.

The colostrum is at once an excretion and secretion of utility. Its excretory cells irritate the stomach to peristaltic action, compelling the rectum to expel the meconium.

Fig. A, showing the ganglionic nervous system of the *pupa* of the CORYDALIS CORNUTUS (Leidy and Haldeman, *Proc. Acad. Nat. Sci.*, Philada., 1848), illustrates the simple forms in which reflex action is seen by the enlarged caudal ganglion, analogous to the sympathetic action between the human stomach and rectum.

Fig. A.



The quantity of *fats* and sugar in colostrum is immediately absorbed, supplying the necessary hydro-carbon for the rapidly living and growing organism, and its albuminous fluid contains an albuminoid especially to assist primary digestion.

Fig. 1. COLOSTRUM.

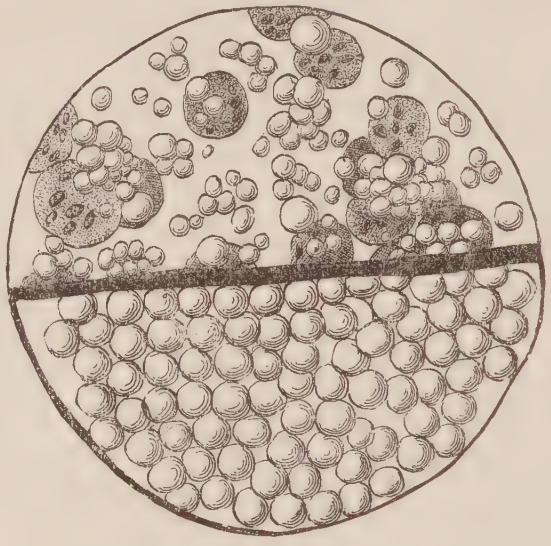


Fig 2. MILK.

Milk and colostrum, microscopically.

TABLE V.—*Human Milk and Colostrum.*[1]

Elements.	Colostrum. Fig. 1.	Milk. Fig. 2.
Casein	4 per cent.	3.43
Fat	7 "	4.54
Sugar	5 "	2.53
Ash	Less than milk.	.23
Water		88.36

[1] Vogel, Diseases of Children, N.Y., 1864.

TABLE VI.—*Human Milk Analyses.*[1]

From birth.	Fat.	Casein.	Sugar.	Ash.
1½ days	4.31	4.10	6.05	.53
9 "	4.07	3.02	5.78	.68
16 "	4.05	3.15	5.67	.69
23 "	3.98	3.11	5.80	.68
Right breast . . .	4.02	3.35	5 78	.60
Left breast . . .	2.67	3.29	5.54	.60

Human milk has been analyzed into casein, fatty matters, and sugar, like the product of the cow, but the bovine curd is of a much more permanent character. The reason was until recently undiscovered.

Meissner's classical researches upon digestive products, divided them into a series of *a*, *b*, and *c* peptones, respectively known as syntonin *para*-peptone and *dys*-peptone.

TABLE VII.—*Digestive Juices and their Ferments.*

Digestive juices.	Ferments contained in them.	Action on food materials.
Saliva . .	Salivary diastase or ptyalin . .	Changes starch into sugar and dextrine.
Gastric juice .	*a*. Pepsin . .	Changes albuminoids into peptones in acid medium.
	b. Curdling action .	Curdles the casein of milk.
Pancreatic juice	*a*. Trypsin . .	Changes proteids into peptone in alkaline and neutral media.
	b. Curdling action .	Curdles the casein of milk.
	c. Pancreatic diastase	Changes starch into sugar and dextrine.
	d. Emulsive act .	Emulsifies and partially saponifies fats.
Bile . . .	?	Assists in emulsifying fats.
Intestinal juice .	*a*. Invertin . .	Changes cane-sugar into invert-sugar.
	b. ? Curdling action .	Curdles the casein of milk.

"An examination of the table shows that starch is attacked at two points—in the mouth and in the duodenum—by two ferments, salivary and pancreatic diastase, which are substantially identical. Albuminous matters are also attacked at two points—in the stomach and in the small intestine—but here the two ferments, pepsin and trypsin, are certainly not identical. The ferment, of which the only known characteristic is to curdle milk, is found in the stomach and in the pancreas—and I think also in the small intestine. The

[1] H. A. Mott, Ph.D., Amer. Chemist, vi. p. 367.

bile is known not only to possess the physical property of emulsifying and promoting the absorption of fatty matters, but other duties not clearly defined. The secretion which transforms cane-sugar, strange to say, is not encountered until the food reaches the small intestine."—ROBERTS.

In 1875, Schutzenberger, by a series of experiments, divided albumin into certain approximates. Albumin, when treated with dilute sulphuric acid, gave a gelatinous precipitate, slightly yellow, of weak acid reaction, and insoluble in water, alcohol, or ether, of the empirical formula $C_{24}H_{42}N_6O_{12} + H_2O$, named *hemi-protein*.

In the filtrate there was found an amorphous material of a very weak acid reaction, having the formula $C_{24}H_{40}N_6O_{10}$, designated hemi-albumin. The filtrate from hemi-albumin vigorously reduced Fehling's solution.[1]

Kuhne, in 1876, presented a scheme upon the digestion of albumin.

TABLE VIII.

Albumin.

Anti-albumose.		Hemi-albumose.	
Anti-peptone.	Anti-peptone.	Hemi-peptone.	Hemi-peptone.
		Leucin tyrosin, etc., by action of trypsin.	Leucin tyrosin, etc.

TABLE IX.

Albumin.

Anti-group.	Hemi-group.
Anti-albumid (Hemi-protein).	
Anti-albumat (Para-peptone).	
Anti-albumose (Syntonin).	Hemi-albumose (A. peptone).
Anti-peptone.	Hemi-peptone.[2]

Anti-*albumid* (the hemi-*protein* of Schutzenberger) is insoluble in gastric juice, but soluble in solution of soda, and easily digested by trypsin. Anti-*albumat* (is the *para*-peptone of Meissner) is an abnormal result of digestion, due to insufficient pepsin; it is, however, soluble in gastric juice, but not absorbable until in contact with trypsin.

Anti-*albuminose* (or syntonin), is unaltered by stomach juices or trypsin, in short, it is the true anti-peptone; when these several albumins arrive at that stage, they are readily assimilated.

[1] Bulletin de la Société Chimique de Paris, 1875-6; also, Amer. Chem. Jour., vol. ii. p. 207.

[2] Verhandl. Naturhist. Med. Verins, Heidel. 1876; also, Amer. Chem. Jour., vol. ii. p. 211.

Hemi-*albumose* (Schutzenberger's hemi-albumin) is with difficulty soluble in cold, easily in hot water, in dilute alkalies, also in pepsin; through trypsin readily changed to hemi-*peptone*, when it separates into leucin and tyrosin, etc. Hence, it is observable that albuminous matter is parted by gastric juice into two groups, allowing of early and late digestion.

The *anti*-group is slowly absorbed, while the *hemi*-group is readily broken into further approximates.

Dr. T. Schmidt, in his inaugural dissertation, Moscow, 1882, thinks the amount of hemi-albumose in specimens of human and cow's milk constitutes the main difference between them.[1]

His experiments show where a sample of neutral cow's milk has five times its volume of two-per cent. solution of hemi-albumose added to it, that rennet extract does not coagulate it for at least twenty-four hours; should the reaction of the milk be acid, the mixture gives a flocculent precipitate, with no tendency to agglutinate or shrink the serum, and remains milky as in human milk when treated with rennet without hemi-albumose.[2]

TABLE X.—*Hemi-albumose in Human and Cow's Milk, with an Artificial Milk on that basis.*

Milk proteids.	Human.		Cow's.	
	Per cent. proteids to whole milk.	Per cent. proteids to themselves.	Per cent. proteids to whole milk. X	Per cent. proteids to themselves. Z
Casein	.6573	49.8	3.1666	87.3
Albumin . . .	.3382	25.7	.2970	8.2
Hemi-albumose . .	.3224	24.5	.1672	4.5
Total proteids . .	1.3179	100		100

	Theory requires.[3] Taking cow's milk as a basis.		Artificial human milk.	
	Per cent. proteids to whole milk. 2X	Per cent. proteids only. 2Z	Per cent. proteids to whole milk. 3X	Per cent. proteids only. 3Z
Casein	Constant.	Constant.	3.1666	87.3
Albumin . . .	+1.1806	36.8	1.4776	45.0
Hemi-albumose .	+1.3707	38.4	1.5379	42.9

[1] N. Y. Med. Abstract, vol. iii. p. 76. [2] Op. cit.

[3] By the usual rules of proportion, using casein as a constant, add respectively columns X and 2X together; give the proportions which cow's milk should be to the constituents of human milk.

Hemi-albumose has the quality of being soluble, in an alkaline liquid at 55° C. (131° F.), charged with carbonic acid gas.

The chemistry of albuminous digestion leads us to see the reason that human milk is so admirably adapted to the little body dependent upon it.

If from imperfect female development the mother is unable to nourish her offspring, the acute disease causes, or its sad results deprive the babe of natural nutriment, then intelligent medical advice is of vital moment—what to recommend; what to avoid.

Dr. Hiram Corson,[1] in a paper read in 1870, at Saint Paul, Minn., was in favor of undiluted cow's milk for infants.

To physicians, not in cities, where a certain fat percentage may be relied upon in the milks, from recent chemical information, the task is comparatively easy. Respecting the milk from one cow, my friend, Prof. Sharpless, of Boston, an analyst, in an exhaustive paper before the American Academy of Arts and Sciences, says:—[2]

"A uniform diet for a child will be *much* better secured by mixing the milk of a number of healthy cows than when it is attempted by trying that of a single one. Since, as we see (Prof. Sharpless gave the details and results of 2209 analyses from 10 countries by 20 different analysts), and found the milk of any one cow varies very considerably."

In the following table (XI.) are comparisons of 2209 cows' milk and 129 human milk analyses, the variations of different milkings and teats of the cow. (See Table XII.)

TABLE XI.—*Average of Cows' and Human Milk Analyses.*

	COWS' MILKS. 16 different analysts, 2209 analyses, 10 different countries.[3]	HUMAN MILK. 4 different analysts, 129 analyses, white and black, American and European.[4]
Casein	4.14	4.78
Fat	3.87	3.31
Sugar	4.62	4.79
Ash	.63	.32

N. B.—Many of these analyses were made some time ago, before acquaintance with more precise information and methods.

[1] Pamphlets Medical, vol. iii. No. 11.

[2] Proc. Amer. Acad. Arts and Sci., vol. vii. pp. 49–98.

[3] Sharpless, Proc. Amer. Acad. Arts and Sci., vol. vii. 49–98.

[4] Mott, Amer. Chem., vi. 367.

TABLE XII.—*Differences in the Same Cow's Milk.*[1]

Runs.	Fat.	Casein.	Sugar.	Ash.
First	1.84	3.01	4.49	.54
Second	3.03	4.25	4.80	.58
Third	4.03	3.90	4.50	.54
Teats.				
Right forward	3.32	3.53	4.90	.59
Left forward	3 00	3.42	5.00	.57
Right rear	2.73	3.61	4.72	.61
Left rear	2.13	3.48	4.88	.64

A leader in one of the late London medical journals[2] remarks upon the discrepancy of human milk analyses, and how misleading they are when only the proportions between casein and albumen are thought sufficient to account for the unsatisfactory behavior of the milk of different animals.

TABLE XIII.—*Relation of Casein to Infant Mortality.*

	Human milk.	Asses' milk.	Goats' milk.	Cows' milk.
Casein to 100 parts of albumen	122	155	173	237
Number of infants used	...	38	42	6
Dead resulting	...	10	34	5

	Asses' milk.	Goats' milk.	Cows' milk.
Percentage of living infants	74	20	17
" dead "	26+	80+	83

The problem is yet exceedingly difficult what to suggest as a suitable diet for infants where no natural fresh animal product is to be had.

If the variations in the product of milch cows is notorious (refer to Table XII.), what must it be in a sensitive animal like the human female?

The statistics of mortality in infant institutions is a pointed comment upon our progress in a matter of such vital importance to our national existence. See Table XIII.

Dr. A. V. Meigs,[3] of Philadelphia, after a careful survey of that field, advises condensed milk diluted with six volumes of water, while the proportion of fats are to be made up with the addition of cream. He states in a foot-note that the cream contained but 12

[1] Op. cit., see Table XI.

[2] London Med. Times and Gazette, vol. i. (1883) p. 385, whole No. 1710.

[3] Med. News, Phila., xli. p. 505.

per cent. of fats. Then *where* will he get fats to add to the condensed milk? as good new milk should have 9 to 13 per cent. of cream in it.

Dr. Keating,[1] in an able lecture, depicts his difficulties in the effort to substitute *gluten*, a vegetable diastase, for the animal diastase, *saliva*.

Just here is a matter demanding attention, namely, that *vegetable* albumin, gluten, and maltose are not animal albumin, saliva, or lactose, though like unto them; exceedingly important in their relation to assimilation by an organism.

TABLE XIV.—*Chemical-Isometrism.*

Cellulose.	Cane sugar (sacchrose).
Starch.	Milk sugar (lactose).
Dextrin.	Malt sugar (maltose).
All have formula	All have formula
$C_{12} H_{20} O_{10}$	$C_{12} H_{22} O_{11}$

Possibly better illustrated by the disposition of the letters *T*, *A*, and *R*, when being transposed to read *TAR*, *RAT*, and *ART*, words of very dissimilar significance.

If nothing but these artificial vegetable foods are procurable a child *may exist* until able to take substantial diet.

Dr. E. Cutter[2] examined many artificial foods MICROSCOPICALLY, resulting in the following classification:—

TABLE XV.—*Artificial Infants' Foods.*

1. Containing *more* gluten than flour:—

Franklin Mills Entire Flour,	Mead's Wheat Flour,
Hawley's Liebig Food,	Baby Sop.
Arlington Wheat Meal,	

2. Equal to wheat flour, which contains gluten 3.50, starch 63.64:—

Gluten N. Y. Health Food Co.,	Horlick's Food.
Savory & Moore Food,	

3. *Less* gluten than flour:—

Ridge's,	Victor's Baby Food,
Mellin's,	Geiber's,
Gluten Flour,	Mother's Milk Substitute.
Anglo-Swiss,	

4. No gluten:—

Keasby & Mattieson,	Redmon's Ceraline,
Imperial Granum,	Farwell's Glutena Flour,
Crosby's Brain and Nerve,	Taylor Bro., arrowroot mainly,
Blanchard's Glutena,	Potatoes starch,
Duke's Glutena,	Hubbell's Prepared Wheat,
Blair's Food,	N. Y. Food Co.'s Flours.

[1] Phila. Med. Times, vol. xii. p. 33.

[2] Amer. Med. Weekly, January 7, 1882.

Table XVI.

Prof. A. R. Leeds[1] also examined them CHEMICALLY.

Foods.	Water.	Fat.	Grape sugar.	Cane sugar.	Starch.	Gums, etc.	Albuminoids. C H O N S P Fe, etc.	Ash.
Theoretical Food . .	81	3	..	11	..	..	4	1
FARINACEOUS FOODS—								
Hubbell's	7.78	.41	7 56	4.87	67.60	..	10.13	1
Blair's	9.85	1.56	1.75	1.71	64.80	2.94	7.16	Unde.
Imperial Granum .	5.94	1.01	..	..	78.93	.50	10.51	do.
Ridge's	9.23	.63	2.40	2.20	77.96	..	9.24	do.
Victor's Baby . . .	7.49	1.62	.62	19.92	63 45	..	8.87	.96
Farwell & Rhine . .	12.67	.84	2.23	1.42	68.36	.51	10.39	1.00
N. Y. Health Food Co.	11.90	..	..	..	49.53	..	23.18	Unde.
MILK FOODS—								
Gerber's	6.78	2.21	6.06	30.50	38.48	..	9.56	Unde.
Anglo-Swiss . . .	6.54	2.72	23.29	21.40	34.55	..	10.26	1.20
LIEBIG'S FOODS—								
Savory & Moore's. .	8.34	.40	20.41	9.08	36.36	.44	9.63	
[2]Mellin's	5.00	.15	44.69	3.51	None.	..	None.	1.89
Horlick's	3.39	.08	34.90	12.45	do.	..	6.71	1.28
Hawley's	6.60	.61	40.57	3.44	10.97	..	5.38	1.50
Keasby & Mattieson	27.95	None.	36.75	7.58	None.	..	None.	.93
Baby Sop	11.48	.62	2.44	2.48	51.95	5.24	7.92	1.59

Upon these microscopical or chemical bases respecting infant foods, one of two opinions forces itself upon our minds: 1st. That Liebig's theory of the necessary changes of starches to sugar for assimilation is wrong; or, 2d. That an *unknown* factor exists, as the variable success of the profession, by the use of these patent foods, seems to indicate. The want of this information brings to the household sorrow and to the nation loss.

We do, however, reach this conclusion, that: The use of mixed healthy cow's milk, rendered alkaline by bicarbonate of soda (baking soda, NOT *powder*), with the addition of a tablespoonful or two, as the child is older, of good cream to half pint of milk, and then heated to 55° C. (121° F.), and afterwards sweetened by a strong freshly prepared syrup of lactose or milk sugar, forms the most admirable artificial infant aliment now known (see Table X.).

[1] See New York Med. Journ., xxxvii. p. 149, April 28, 1883.

[2] Since Prof. Leeds's paper has appeared in the N. Y. Med. Jour., advance sheets of the Sixth Annual Report of Board of Health of N. J., in which he says Mellin's food contains between 4 and 5 per cent. of albuminoids. (See pp. 204 and 206 of that paper.)

INSANE ASYLUMS, IN SOME OF THEIR RELATIONS TO THE COMMUNITY.

By R. H. CHASE, M.D.,
NORRISTOWN.

Throughout the entire field of erroneous belief there is none more unfounded than the popular delusion that persons of sound mind are frequently sent to institutions for the insane, from improper motives, and there indefinitely deprived of their liberty.

Universal emphasis has been given to this assertion of late by the publication of quite a harvest of so-called exposures in this and other States, through the medium of the daily press. I regret the more, that medical editors have been drawn into this snare, and through them and other sources, the error has been disseminated, even in our own profession, to an extent that would seem incredible.

Some zealous members of "the National Society for the Protection of the Insane," who are blind in regard to the real facts, have also aided in the spread of this false report, not perceiving the injury that is being done to the very class they are organized to protect.

At its last annual meeting, held in Philadelphia, a number of papers were read, dwelling so vividly upon the imprisonment of sane people in hospitals, that a revulsion of sentiment was provoked in the meeting itself. A gentleman present, whose practical experience, in the care of the insane, renders him an authority, and who has been known for years as their friend, emphatically denied the charge, and denounced it, then and there, as absurd.

Why, said he, these members would have you believe that any one of us is in danger to-night upon his return home of being pounced upon from some alley and hurried off to a mad-house, there to be incarcerated for years.

Is it possible, that in this enlightened age, there can be found any one of intelligence, who is willing to yield his common sense to such a belief?

Miss Chevaillier, the active secretary of the above-named society,

who, to say the least, looks askance upon asylums, and who has been engaged for some years in ferreting out just such wrongs, informed me that her experience led her to believe that abuses of this character did not exist.

Let me bring the question home by asking you, the representatives of the profession in Pennsylvania, is there one here who has been a party to the crime of committing, with evil motives, a sane man to an asylum? And its pertinency applies with equal force to your associates and peers throughout the State.

A careful search through the files of any hospital will invariably show (so vigilantly is the point guarded) that every patient is admitted only in legal form, upon the certificates of respectable physicians. Where, then, is the opportunity for the practice of this alleged offense?

In all the cases of commitment with which I have been familiar, exceeding three thousand in number, I have never known of an instance of this kind.

The distinguished Dr. Kirkbride, referring to the subject in his work entitled *Hospitals for the Insane*, makes use of the following explicit language: "A very extended experience has satisfied me that the friends of the insane are not disposed to confine them unnecessarily, or from sinister motives, and I have yet to learn of any deliberate attempt to confine a sane man or woman in any of our hospitals, as insane, or to place an insane one there from bad motives. The possibility of this being done is unquestionable, but that any such designs are often, if ever, entertained in the United States, is very doubtful; and, if attempted, they could hardly escape detection; for the officers of these institutions, regarding themselves as the special friends and protectors of the insane, would be the first to discover and expose such an outrage."

"The author of the *Jurisprudence of Insanity* (Ray), as he has declared in his publications, in more than three thousand five hundred cases under his own observation, has never met with one of the kind, and he utterly repudiates the idea of such being of even rare occurrence anywhere in this country."

Dr. J. A. Reed, the Physician-in-chief of the Dixmont Hospital, has recently asserted under oath, "that in the twenty-six years of his practice as a hospital superintendent, he has never known of a single case of the commitment of a sane person"

I am credibly informed that the entire experience of the Board of Public Charities of Pennsylvania corroborates this testimony.

Lord Shaftesbury, the President of the British Lunacy Commission, giving evidence before a select committee of the House of

Commons, in 1877, stated, "that in the eighteen previous years more than one hundred and eighty-five thousand certificates had passed through their office, and adds, "I am quite certain that out of this number there was not one person who was not shut up upon good, fair, *prima facie* evidence that he ought to be under care and treatment."

A few months ago the whole State was electrified by the startling announcement that a sane man, a member of the profession (a Dr. Sevin), had been confined for eight years in the Dixmont Hospital, near Pittsburg, and had finally succeeded in effecting his release. The indisputable proof of Dr. Sevin's insanity having become familiar to all by the unimpeachable evidence of Dr. J. L. Stewart and other prominent and unbiased witnesses, will need no further comment.

An article bearing the title, "The Insufficiency of the Laws Governing Commitments to Asylums for the Insane, with reports of cases," appeared in the Philadelphia *Medical Times* of recent date, from the pen of one of the physicians in Atlantic City. Reference is made to this on account of the consideration which has been given to it, and because it is typical of the crude and fallacious notions that even distinguished men may entertain. This author's suggestions carried into practice would cause a retrogression of at least twenty years in much that pertains to the welfare of the insane.

Six of the seven cases reported in this paper bear no relation whatever to the subject treated; none of them having been confined in a hospital, and, as far as appears, whose friends had not even thought of placing them there.

The remaining one seems a case in point, and in substance is thus described: "An intelligent and scholarly gentleman was sojourning in Atlantic City during the winter months on account of a tendency to pulmonary disease. He was part of the time under my professional care. Nothing in his manner or conversation ever awakened the slightest suspicion of mental aberration. Indeed, I regarded him as possessing an exceptionally calm and well-balanced mind." A striking test of this is given by recounting the remarkable exploits of the patient at a fire, when the Doctor's house was in danger of being consumed.

"During one of his occasional visits to his home in a suburb of Philadelphia," the narration continues, "this same gentleman was called upon by a physician of the neighborhood, and a few hours later, while walking on the street, was arrested, hustled into a carriage, and taken to the State Hospital at Norristown."

In the not over-wrought diction of a fair-minded physician, in a

standard medical journal, whose only desire is to carry conviction with his argument, this case is dressed in sombre attire, compared with the height of color that Dr. Sevin's and similar cases have received of late when paraded before the public.

To all appearance, the narrator's knowledge is formed from a casual acquaintance with the Philadelphian, while away from home, among strangers and under the restraint which such conditions impose, coupled with the patient's own version of his case. Let us examine more reliable data, the facts as given by the relatives.

Several months prior to this gentleman's admission to the hospital, the family, consisting of a wife and three grown children, began to note a change, without apparent cause, in his manner, habits, and disposition. He became irritable and fault-finding, and would brook no opposition to his will. His affection for them changed to indifference and suspicion. From a moral man of most exemplary habits, he developed a morbid craving for strong drink, which rapidly grew into free indulgence. His ideas regarding religion and many important affairs of life underwent a distinct change. For instance, his views on home discipline were peculiar, and he tried to carry them into practice. Considering himself the lawful master of his house, he believed that his family should obey him blindly, under any and all circumstances, and in case they failed, he declared he had the right even to take their lives for disobedience. He became quarrelsome and profane, which was completely at variance with his rule of conduct, and so altered was his deportment that on several occasions he struck his wife, and one night aroused the house in a boisterous assault upon her. He was much of the time low-spirited and repeatedly threatened self-destruction.

For brevity, a systematic history of this case is not here attempted; the hereditary history, the checkered career, the mental strain, the worry, the broken health are all omitted, in the description, trusting that the manifestations given will evince that the friends and physicians acted in good faith in adjudging him insane.

The writer remarks: "Fortunately, he fell into kindly hands at Norristown, and succeeded in getting a letter to one of his friends in Atlantic City." Kindly hands indeed! I should like to ask him, in what hospital for the insane in Pennsylvania, or in his own State, forsooth, would he not have fallen into kindly hands, or not have had his letters freely mailed to his friends and counsel?

This is an unjust imputation upon the character of honorable men, and especially upon the fair fame of the two humane superintendents of New Jersey.

After a fortnight's residence, which to the patient was a pleasant

one, I advised his wife to send him to the seashore, where he had previously derived benefit, as his case seemed to be one of those greatly aggravated by home treatment and still not sufficiently severe to need immurement. In about a week all the arrangements for his visit to Atlantic City being perfected, he took his leave of Norristown.

The account in the *Medical Times* makes it appear that the patient's friends in New Jersey were the sole executors of his release; on the contrary their efforts bore little or no relation to it.

Such are the details of an unusual and trying case. The commitment papers drawn up in legal form, the certificate signed by two prominent physicians, the friends actuated by pure motives, the mildest form of restraint thrown about the patient, while under observation to determine his mental status, having free intercourse with his friends and legal advisers, and yet this exceptional case, which in respect to the doubtful propriety of placing him in an institution, is not repeated in several hundred admissions, is held up to the community as an injustice frequently perpetrated upon sane persons by designing relatives and heartless asylum officials.

What remedy is proposed for this fancied wrong? It is, in a word, to make the laws controlling admissions to asylums more stringent. And to accomplish this, the reformer in the medical journal, seriously proposes that a sick man or woman be sentenced to a hospital by a jury the same as a criminal would be to a prison. A procedure so obviously unwise that but one State has ever had the foolhardiness to adopt it, and the universal verdict is a condemnation of the system.

Did time permit, it could be easily shown, I think, that more rigid laws regulating admissions, which would entail greater expenditure of time, money, and red tape would tend still more to jeopardize the rights of the insane. Let it not be understood from this, however, that I am prejudiced or satisfied with present attainments. Since the day Pinel, in France, and Connolly, in England, struck the shackles from the limbs of this afflicted class, and insanity has been regarded as disease rather than the possession of the evil one, progress has steadily been made, and at no period more decidedly than during the last ten years; and, if I mistake not the signs of the times, an advance will still further be made in the next decade in all departments of psychiatry that will satisfy the reasonable demands made upon it from any quarter.

The lunacy laws of this State undoubtedly need revision, in many particulars, and it is gratifying to those who have the cause at heart to know that wise and judicious legislation is in progress to

give to these unfortunates the legal rights that will insure their more complete protection.

Again, it is not infrequently asked in a cynical manner, what are insane hospitals accomplishing to lessen the spread of insanity? What can be expected of them, I ask, when they have no control, excepting indirectly by precept and warning, over the causes which produce mental disease? Do you look to hospitals for consumptives to directly lessen the ravages of pulmonary disease, throughout the world, or to venereal wards to drive that scourge from the face of the earth? I think not. And while the mission of any one of these may not be that of educators and reformers you would not depreciate the work accomplished by them.

I am free to admit that insane asylums, from the very nature of their work, tend to increase rather than decrease the number of insane persons in the community; and, as can be seen, the more skillfully patients are treated the larger and larger the number of recoveries will be sent out to spread and propagate mental and nervous diseases, by the mysterious laws of heredity. The logic of this deduction applies, of course, with equal force to the profession in general in its dealings with all hereditary diseases. Yet this need give no cause for alarm, for at the proper limit, nature will station her forces of contraversion.

A DEFORMITY WHICH IN CERTAIN CASES FOLLOWS DISLOCATION OF THE FOOT OUTWARDS AT THE ANKLE-JOINT.

By E. A. WOOD, M.D.,
PITTSBURGH.

The dislocation of the foot outwards, or, as some prefer to call it, dislocation of the tibia inwards at the ankle-joint, is in certain cases followed by a condition of the parts characterized by enlargement of the distal end of the tibia, by undue prominence of the internal malleolus, by increased inter-mallolar space, by turning of the foot outward, as in *talipes valgus,* and by the foot presenting outside the axis of the leg. In addition to these elements of deformity, there are tenderness about the joint, pain when weight is borne on it, and inability to walk unaided. This condition of the ankle is not always comprehended, and when not, and not submitted to the best treatment, is certain to become worse. Even with the best treatment deformity, dissatisfaction, and a lawsuit may not always be prevented.

The deformity is sometimes attributed to "weakness," to incomplete reduction of the luxation, or to too early exercise of the ankle. The patient, unless made to comprehend the nature of the trouble, will be inclined to lay blame on the surgeon, while the latter, if not familiar with the cause of the deformity, will be embarrassed and harrowed with doubts. To both patient and surgeon a more annoying dilemma cannot be conceived of than where one cannot explain nor the other comprehend the character of a deformity like the one under consideration.

I have never known the deformity to occur except in cases of outward dislocation of the foot; hence it will be easier demonstrated by setting forth the prominent features of that special luxation. In this accident the foot is rolled outward and is carried out beyond the axial line of the leg, carrying with it the lower four or five inches of the fractured fibula. The tibio-tarsal ligaments are completely

ruptured, and the internal malleolus forms a tumor which may touch the floor should weight be borne on the injured ankle.

Now, that, in brief, is the common dislocation, which may be readily reduced, and which recovers without deformity other than an occasional stiff action about the joint. But suppose that we have this outward dislocation and something more—suppose that a person falls from a considerable height with such force as not only to dislocate the foot outward, but also to drive the end of the tibia against the ground or floor, where it sustains the shock of the weight and inertia of the body, thereby causing injury to the tibia either in the form of contusion, or a split, or an impacted fracture, then a serious complication is obvious.

In this case of outward dislocation of the foot complicated with severe injury of the distal end of the tibia, the dislocation is at the time and for weeks the important and absorbing feature. The luxation is patent, the injury of the tibia obscure; the foot is out of place, and the joint is painful; the injured tibia offers no disarrangement to indicate its hurt condition, while any pain that may occur is likely to be laid to the wounded ankle. There is no trouble in reducing the dislocation, and in keeping it *in situ*.

In the case under consideration it is this complication in the form of a disguised or obscure injury of the tibia that is the cause of the subsequent trouble. An uncomplicated outward dislocation of the foot may be reduced, and it will get well without deformity; a severely injured distal end of the tibia will likely lead to inflammation, and that inflammation may end in enlargement, either by thickening of the periosteum, interosseous deposit, or thickening of the articular cartilage.

A bone injured at or near its articular extremity may become enlarged by thickening, but may not become elongated, and the cartilage may not become thickened because of the restraint by an intact and perfect articulation of the proximate joint. But if the joint is loose, or one side of it loose from a recent luxation, then there is nothing to prevent the thickening of the cartilage and the elongation of the bone, by which the joint space will be encroached upon.

When the foot is dislocated outward, and when the accident is complicated with severe wound of the lower end of the tibia, that bone is liable to inflammation, which may result in enlargement. If the latter, it will not only enlarge in its circumference, but will also elongate, because the disarticulated joint offers no resistance. Bear in mind, however, that while the ruptured tibio-tarsal ligaments offer no resistance to the tibia and its articular cartilage from en-

croaching on the joint space, thus shoving the astragalus before it; the fibulo-tarsal ligaments remain intact, and by their firmness prevent the outer part of the foot from receding. The result of these two opposing forces—the elongated tibia shoving before it the inner side of the foot, while the intact external lateral ligaments hold the outside of the foot in its relation to the fibula—will be the turning or rolling outward of the foot.

The enlargement of the articular end of the tibia widens the intermalleolar space, and as the fibulo-tarsal attachment is firm, while the tibio-tarsal is loose, the foot is carried along with the lower end of the fibula outside the axis of the leg. The astragalus cannot fill or occupy all the space between the widened malleoli, and being firmly attached to the fibula it must lie close to that bone, while there must be a space between the internal articular facet of the astragalus and the articular surface of the internal malleolus. Besides, the thickened articular cartilage of the tibia will have changed the plane of the joint.

Can the deformity be prevented? Or, to be explicit, can the enlargement which follows severe injury of the distal end of the tibia, as found in some cases of outward dislocation of the foot, always be prevented?

It is not a question pertaining to the dislocation, but one relating to an injured tibia. It is the latter complication that causes the deformity, and if that deformity is preventible it will be through preventing its cause. But can we always prevent inflammation and enlargement where we have a severely hurt tibia? Whatever of uncertainty there may be in regard to the question of prevention, it is certain we may, by timely and protracted treatment, confine the deformity to the minimum degree.

Let us take a case of outward dislocation of the foot complicated with severe injury to the end of the tibia. Let us say that it is at the end of three or four weeks after the reception of the injury. No trouble was had in reducing the luxation nor in keeping it in place. There was no manifestation of the latent mischief, except, perhaps, more pain and feverishness than usually follow simple dislocations. But, at the end of three or four weeks, the surgeon on removing the dressings notices that the internal malleolus is more prominent than it should be, that the foot inclines to turn or roll outward, and that the foot is slightly outside the axis of the leg. He may also notice that the parts over the lower end of the tibia are swollen more than ordinarily, tender, and perhaps painful. These features, however, are but slight, indicative of tendency to misplacement rather than actual displacement, and are attributed to faulty dress-

ings. Accordingly the dressings are adjusted to overcome the slight deformity or tendency to misplacement. At his next dressing he finds that he has not succeeded, that the slight displacement is still there, perhaps slightly increased, and he again adjusts the dressings to overcome the trouble, but weeks roll round, and the deformity and the tendency to deformity obstinately persist. If the surgeon is very observant he will by this time have learned why the trouble persists; he will have discovered that the lower end of the tibia has enlarged, and that the intermalleolar space has widened. He could not, at once, overcome the deformity if he would; unjustifiable force alone could crunch the bones of the joint into their normal relations.

After about two months, during the most of which time special efforts have been made to correct the threatening deformity, the dressings are removed, and the patient left to himself and a cane. At this time the deformity is not great, but the tendency to deformity is very great, much greater than is indicated. The special dressings have held it in check. So slight is the apparent trouble at this time, that the inexperienced surgeon will believe that rest and confinement in splints have done all that they can do for the joint, and that exercise will finish all that is required in the way of treatment.

Now, it is just here that efficient treatment should begin, or rather be continued, with the view of preventing further deformity. A skilful instrument-maker should be instructed to make a steel support reaching from the bottom of the foot to the knee, similar to the support used in *talipes valgus*, to which deformity our case bears a strong resemblance. This support should be worn constantly, except while in bed; under no circumstance should the patient be permitted to bear weight on the injured ankle without this or some other adequate support, until the tenderness, pain, and weakness have disappeared. This may take a year and perhaps two.

But the inexperienced surgeon of our hypothetical case, at the end of about two months, surrenders his patient to a cane, with instructions to walk on the weak ankle. He patiently begins, timidly and gradually to bear weight on the ankle. At first the weight is light, because of the discomfort, but being a determined fellow, and told that exercise will strengthen the foot, he will after a week or so walk a little with the aid of his stick, but it is a limping, painful gait. Indeed, locomotion becomes each day more painful and difficult.

The patient now notices that there is something wrong with the joint besides pain and inability to walk. His officious friends notice

it also, and comfort him with their advice, while the unfortunate surgeon comes in for condemnation. In alarm he sends for the surgeon to "break the leg over." The latter finds the joint in the condition which has already been described in this paper. The removal of the sustaining splints and the bearing of weight on the ankle had resulted in displacing a foot that was not tied in place by internal lateral ligaments. What was only a slight displacement, and a tendency to displacement, has become an ugly and painful deformity by injudicious exercise.

A PLEA FOR THE THOROUGH REMOVAL OF CARCINOMA OF THE BREAST.

By SAMUEL W. GROSS, M.D.,

PROFESSOR OF THE PRINCIPLES OF SURGERY AND CLINICAL SURGERY IN THE JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA.

In my *Treatise on Tumors of the Mammary Gland*, and in subsequent papers read before several medical associations and societies, I have earnestly advocated the amputation of the entire breast, no matter how small the tumor may be, or how sound the superjacent skin may appear, for the cure of carcinoma, for the reason that the accumulated experience of ages has demonstrated that recurrence within a few months is almost invariable after excision as ordinarily practised. Experience has, moreover, shown that reproduction takes place, as a rule, in the skin and subcutaneous tissue adjacent to the cicatrix, and that it depends upon the continuous growth of portions of infected tissue that have been left behind. Hence, surgeons are now agreed that the more freely a carcinomatous mamma is removed, the better is the chance for a final cure; but I regret to say that very few resort to the operation which is alone adequate to effect riddance of the structures in which recurrence takes place.

For some years I have acted upon the conviction that the entire breast, that is to say, the mammary gland with its surrounding fat and investing skin, should be cut away, that the fascia of the pectoral muscle, which is a common source of reproduction, should be removed, and that the axilla should be opened with the view of clearing out infected glands, whether they can be felt before the operation or not. Of the importance of the last step of the operation an idea may be formed, when I state that in nearly one-half of all the cases, the axillary glands will be found to be involved, when they cannot be detected by external palpation.

My object to-day is to lay before you the proof that adequate operations, even when performed late, or after the axilla is affected, should always be resorted to when the cases admit of them.

I have now operated in the manner which I have briefly indicated in 20 cases, with a mortality of 1, or 5 per cent. Of the remainder, I have been unable to gain any further information after the patients were discharged in 3, and in 1 only twelve weeks have elapsed since the operation; so that I have 15 cases upon which to base my conclusions as to the true value of the procedure. Of the 15 cases, the operation was incomplete in 1 for the reason that all the axillary glands could not be removed. In 7 there was recurrence within less than a year, or in seven months and a half on an average. In 6 the disease reappeared in the pectoral muscle and axilla, and in 1 in the axilla alone. Two of the subjects died of visceral tumors, respectively, in nine and twenty-three months. Of the 7 cases which may be regarded as successful—

1	died	without	recurrence	in 11 months after operation.
1	is alive	"	"	1 year after operation.
1	"	"	"	1 year and 4½ months after operation.
1	"	"	"	1 year and 5 months after operation.
1	"	"	"	3 years after operation.
1	"	"	"	3 years and 9 months after operation.
1	"	"	"	4 years and 8 months after operation.

Hence these cases show an average freedom from reproduction of $27\frac{4}{7}$ months.

If the 3 cases in which there is no further history, and the 1 case in which only twelve weeks have elapsed since the operation, be excluded, we have 16 cases, of which 9, or 56.25 per cent., were failures, 1 having died, 1 having been incomplete, and 7 having recurred, and 7, or 43.75 per cent., were successes, the cures being based upon freedom from reproduction after eleven months, as all my recurrences occurred within that period.

Of the 16 operations, in 4 the breast alone required removal, and of these 1 died, 1 recurred, and 2 remain well, respectively, for three years and three years and nine months. In the remaining 12, in which the breast was removed and the axilla cleared out, 1 died without recurrence in eleven months, in 1 the operation could not be finished, 6 recurred, and 4 remain well, so that the successes in this class of cases, although astonishing in the light of former experience, as might naturally be expected, are not so common as in the former class, or in the cases in which the axillary glands are not involved.

It may be urged that sufficient time has not elapsed to test my cases; but, in any event, the great superiority of the new and complete over the old and incomplete plan of operating is shown by seven examples of the latter in the hands of my colleagues, the

results of which I have been able to ascertain. In every one the disease recurred near the cicatrix, and in the axillary glands in two, within a twelvemonth, or in six months and two-thirds on an average. As I have shown elsewhere, from an examination of a large number of properly and improperly conducted operations, if a patient remains well for three years, the probabilities are most strongly in favor of her continuing so. Three of the 16 cases, or 18.75 per cent., may, therefore, be said to be cured, as against none for the 7 incomplete operations to which I have just alluded.

The wound left by the thorough procedure is a large one, and must close by the granulating process, but its area may be greatly diminished by employing the button-sutures of Macewen. The large cicatrix has never been the seat of recurrence, nor has it undergone other secondary morbid changes, in any of my cases.

In conclusion, I show you three women who remain perfectly well, respectively, for sixteen months and a half, three years and nine months, and four years and eight months. In the first and third cases the axilla was also cleared out; in the second it was explored, but as it was free from disease, its contents were not disturbed. In all the cicatrices are soft, pliable, and freely movable on the pectoral muscle.

THE TREATMENT OF PURULENT PLEURAL EFFUSIONS.

By JAMES C. WILSON, M.D.,

PROFESSOR OF DISEASES OF THE CHEST IN THE PHILADELPHIA POLYCLINIC, LECTURER ON PHYSICAL DIAGNOSIS AT THE JEFFERSON MEDICAL COLLEGE, ETC. ETC.

The changes that have taken place in the management of pleural effusions in the last two decades constitute an important advance in practical medicine. In its present form, the treatment of these diseases, though less striking perhaps than the treatment of some other affections, is capable of results in diminishing human suffering and prolonging life not inferior to those of the most brilliant triumphs of modern surgery in other fields.

Thanks to the wide diffusion of the art of physical diagnosis, the recognition of considerable collections of fluid in the pleural cavity is no longer beset with difficulties in any case. Thanks to the courage of Trousseau and Bowditch, to the clinical studies of Traube, Fraëntzel, and others, and to the ingenuity of Dieulafoy and Potain, the indications for the removal of effusions when necessary are now definite, and procedures at once effectual and safe are at our command. Great, however, as has been the improvement in the treatment of these disorders, it is evident upon the most cursory review of the literature of the subject that the progress of knowledge, here as elsewhere, has often been retarded by the weight of authority and the mutations of fashion in medicine. Notwithstanding this fact, the tendency has been in the direction of the recognition of the essential pathological conditions and a simplification of appliances and their use. It is with a view to furthering this tendency that I venture to lay before this Society the details of the plan of treatment that has proved in my hands very satisfactory, and to indicate at the same time the pathological considerations upon which the plan is based.

The physical signs of pleural effusions may in general terms be referred to two series. First, those relating to the absence of the

lung in certain regions of the chest, such as absent or restricted respiratory movement, absent or greatly enfeebled respiratory murmur, enfeebled vocal resonance and fremitus. Second, those relating to the displacement of the organs upon which the pressure of the accumulating fluid exerts itself. These are, in the order in which they occur, vesiculo-tympanitic or otherwise modified percussion resonance on the affected side above the line of the effusion and due to compression of the lung, signs indicative of downward displacement of the liver or spleen, and immobility of the liver upon forced respiratory efforts, signs indicative of displacement of the heart toward the sound side, fixed enlargement of the affected side especially in its antero-posterior diameter, and finally widening and fulness of the intercostal spaces most marked at the base of the chest.

Besides the signs comprised in these two series there are others, as, for example, ægophony, which are neither constant nor necessary to the diagnosis.

Aside from hemorrhagic effusions, and those passive effusions affecting both sides known as hydrothorax, with neither of which we are at present concerned, inflammatory fluid exudations into the pleura are of two kinds, on the one hand a fibrino-serous fluid poor in cellular elements, and, on the other, a thoroughly elaborated or even ichorous and fetid pus.

But the pathological distinction between these fluids is less marked than their gross characteristics. A few weeks ago I withdrew by aspiration, at a single sitting, from the right chest of a man who had been for a long time confined to bed, a large quantity of fluid. Of this the first that flowed was of a straw color and only slightly turbid; gradually, as the cavity contracted, and the tip of the canula was depressed into the more dependent part of the thorax, the fluid became more and more opaque until finally it presented the appearance of thin creamy pus. In fact, with few exceptions pleural effusions are not primarily purulent but serous. They become purulent by degrees, resorption not taking place and the inflammatory process continuing. From the clinical point of view, however, the distinction between fibrino-serous and purulent exudations is of the highest importance. Serous exudations into the pleura are capable of resorption, pus is not.[1]

The methods of physical diagnosis enable us to determine the presence of fluid, not its character. When, however, to the signs

[1] The limits of this paper do not permit me to note the exceptions to this general statement.

indicating the presence of fluid are added certain symptoms, such as great pallor and rapid emaciation, irritative fever with sweating and diarrhœa, the presumption that the fluid is pus becomes very strong. Nevertheless, large purulent exudations occasionally occur without any of these symptoms. The nature of the fluid may always be determined by an exploratory puncture. For this purpose a hypodermic needle is commonly employed. My own preference is for the use of the aspirator, the operation causing no more pain, and having the advantage of permitting the withdrawal of a portion of the fluid at once. It frequently occurs that the removal of a few ounces of fluid is followed by the resorption of large serous exudations that have resisted medicinal treatment.

If the exudation be found to be purulent, the treatment must be determined by the age of the patient. In young children repeated aspiration of the pus as it reaccumulates, frequently results in permanent cure. I have seen one case in which a single aspiration of a distinctly purulent pleural exudation effected a cure in a child four years old. In adults, however, the case is altogether different. After aspiration, the pus rapidly reaccumulates; repeated aspiration exhausts the patient without tending to the obliteration of the cavity. It is vain to hope to effect a cure in an adult by means of aspiration. The diagnosis of empyema being determined, it becomes necessary to establish a thoracic fistula. To the question, When? I reply, With as little delay as possible. If the exudation be large, a host of dangers imperil the life of the patient. He may perish of exhaustion from the constitutional disturbance, or of septicæmia. Heart-clot may form as a result of mechanical interference with the blood-stream in the great vessels by reason of the displacement of the heart. If the lung be long compressed it will expand slowly and imperfectly, sometimes not at all. Necrosis of the pleura may occur and the pus find its way into a bronchus or through the diaphragm. Suffocation is in the former event a possibility; in the latter, fatal peritonitis a certainty. It may find vent by an indirect or tortuous sinus through the chest-wall, an accident not likely to save the patient the ordeal of an operation except at the cost of years of invalidism. Sub-pleural abscesses may form, and finally we must not overlook the risk of gangrene of the lung, of amyloid disease, of tuberculosis.

To the question, How is a thoracic fistula to be made? the answer is not so ready. We must consider the pathological condition, and the real purpose of the operation. We must give heed to the dangers that are said to attend it, and distinguish those that are to be dreaded as real from those that are traditional and therefore to be disregarded. The disease for which this simple procedure is cura-

tive is one of the most serious of the inflammatory affections, and lends to the operation much of its own importance. I am not among those who make light of tapping the chest.

Finally, we must divest the procedure of unneeded complications, and seek to render it as simple as is consistent with the attainment of the object in view and the safety of the patient.

First, then, we have to do with an extensive abscess occupying a serous space, the walls of which are pyogenic. This pus-containing cavity exists at the expense of the surrounding organs, which are displaced to give it room, and which tend to resume their normal position. This tendency, viewed in connection with the disposition on the part of the pus-forming pleural surfaces to adhesive inflammation, and the formation of granulations when allowed to form together, and to again form pus when again separated, indicates the real purpose of the operation. This purpose is the obliteration of the cavity by the elimination not only of the fluid already formed, but also, by continuous drainage, of that formed after the operation. To permit the opening to remain closed, even for a few hours, is to retard the progress of the case by dilating the cavity and thus again converting at some point, and for the time being, a reparative inflammatory process into a destructive one.

It is proper to state at this point my conviction that it is not in all cases possible to determine whether the empyema be primary or secondary, and that this question does not in reality affect the propriety of the operation if the collection of fluid be at all extensive.

The dangers of the operation may be divided into immediate and remote. The immediate dangers differ greatly according as we employ the bistoury or the trocar. As I believe the trocar to be the better instrument in all cases, I restrict myself to the consideration of the dangers attending this instrument alone. And as I likewise believe that a single opening properly made is better than the two openings of *through drainage*, I dismiss the consideration of *through drainage* with the remark that all the immediate dangers of making a single opening through the chest wall are greatly increased by making two. The real dangers directly attended upon the operation may be briefly enumerated:—

First, the inherent lung may be wounded if the puncture be made at a point too high, or the diaphragm if at a point too low.

This danger is to be obviated by determining the areas of dulness at all points of the affected side, and the level of the base of the sound lung as a guiding line. The point of election is in the sixth or seventh interspace in the line of the posterior axillary fold. To the objection that this is not the most dependent region of the

cavity, I reply that as the pus escapes the diaphragm rises, and that a line some distance above the floor of the cavity before tapping speedily corresponds to the level of its floor after the operation. At the point indicated the muscular wall of the chest is not so thick as further back, nor are the integuments so sensitive as further forward. Furthermore, in the recumbent posture this point is favorable to drainage by gravity.

Second, collapse may result from the too sudden withdrawal of a large collection of fluid.

This danger is to be averted by two expedients. Of these the more important is the preliminary withdrawal of a portion of the pus by aspiration, a procedure which I practise in all cases for the following reasons: (*a*) to determine the resistance of the intercostal structures at the position of choice for the radical operation; (*b*) to ascertain the precise character of the fluid; (*c*) to reassure the patient by exhibiting to him the fluid thus withdrawn, and to inspire his confidence by temporary relief aspiration affords; and, finally (*d*), for the purpose indicated, that is to obviate the risk of collapse by the previous withdrawal of a part of the exudation. When the circumstances permit it, the preliminary operation should be practised two or three days prior to the radical operation. The second expedient is the temporary arrest of the flow by mechanical means if collapse be threatened. It is needless to say that an opiate, preferably morphia hypodermically, and stimulants are given prior to the operation to anticipate this danger.

The danger of striking against a rib, spoken of in the books, scarcely demands our attention; its avoidance is a simple matter of operative adroitness. When, however, the ribs fall close together, or overlap in consequence of the partial drainage of the cavity through a previously formed spontaneous fistula in the chest-wall or a bronchus, it is occasionally impossible to complete the operation until after the resection of a rib.

The danger of wounding an intercostal artery with the trocar is not to be feared. The relation of the artery to its rib and the shape of the trocar are such that it is difficult to conceive how such an accident could occur.

Of the remote dangers resulting from the operations I shall allude to two only. These are septicæmia from infection through the freshly abraded tissues, and sudden death in the course of subsequent treatment.

The operation by the trocar possesses over that by the bistoury important advantages in this respect of the danger of purulent infection in the track of the wound, because the former instrument

compresses the tissues and compels them into close contact with the drainage-tube, thus preventing their immediate exposure to contact with escaping pus. The efficient disinfection of the instrument, and the use of disinfectants to wash out the chest at once, tend also to avert this danger, which is in truth one of the most serious attendant upon the treatment of empyema. On the contrary, the wound made by the knife exposes more extensive absorbent surfaces to immediate contact with the outflowing stream of pus.

Of the danger of sudden death during the after-treatment, I can only say that it is of sufficiently frequent occurrence to invest the care of these cases with an enormous responsibility. It occurs in most cases from heart-clot; less frequently, as Bartels suggested, from sudden alteration in the position of the heart in such a way that the ascending vena cava was bent upon itself and its emergents through the foramen quadratum, and occasionally from causes that are as yet wholly beyond conjecture.

The internal administration of the salts of ammonia during the course of the treatment to lessen the danger of heart-clot, and the habitual exercise of due caution in all the details of washing out the cavity, are all that our present knowledge suggests in the way of averting the catastrophe of sudden death.

Finally, the operative treatment of empyema may be greatly simplified. It consists, in fact, of the perforation of the chest-wall, the elimination of the fluid, and the use of a proper tube to effect continuous drainage and serve as the means of washing out the cavity with suitable disinfectants. Yet it has been complicated by various devices in no wise needed to secure the end in view, by some that have proved, in fact, positive hindrances to the attainment of that end. I have alluded to the dangers of *through drainage*. I hold that the cavity of the chest cannot be properly washed out or disinfected by means of a drainage-tube passing into the chest at one opening and out by a second. Certainly it is impossible to apply under such circumstances Callender's principle of distension, by which alone the disinfectant solution can be brought into contact with all portions of the cavity-wall. Whereas, if there be a single opening this may be done with due caution at every sitting. Double canulæ also prevent the gentle application of the principle of distension, and are not available to cleanse or disinfect the cavity. All appliances designed to exclude the air are useless, and belong to the past. Metal canulæ with ingenious caps or valves intended to retain the pus on top, so to speak, are as irrational as they are ingenious. The drainage must be continuous, and the freest communication of the external air is desirable.

The operation does not call for general anæsthesia, nor is the administration of an anæsthetic always safe; the common practice of applying ice to the skin to produce local anæsthesia is to be condemned; it prolongs the procedure, it probably does not lessen the necessary pain, and it is painful in itself.

The thorough disinfection of all instruments, as has been stated, is essential, but neither the spray nor antiseptic dressings are needed. The statistics of this operation to the present time show no better results under Listerism than without it.

The main steps of the operation itself and the subsequent treatment may be briefly outlined as follows:—

The preliminary aspiration.

The puncture by means of short trocars (not exceeding in length two inches), the canula being retained only until the pus ceases to flow, when a soft rubber catheter (Nélaton or Jacques) is slipped into position through the metal canula which is then withdrawn. Catheters are preferable to sections of drainage-tube by reason of the ease with which they can be introduced into the sinus by means of a probe. It is occasionally necessary to change the catheter, or to remove it to clean it. The catheter is retained throughout the treatment by means of silk threads run through its substance and confined to the chest by means of strips of plaster.

The washing of the cavity by means of a ball syringe and a system of soft rubber tubing, the connections being made by sections of tapering glass tubes. This operation is to be repeated once a day. The temperature of the water injected should be 102°–5° F., and the amount of force used very slight indeed. At the first sitting no more should be injected each time than one-fourth the volume of the pus withdrawn. This injection is to be repeated at each sitting until the water returns only slightly turbid or clear. After having used for this purpose many of the disinfectants in vogue, I have settled upon the mercuric bichloride as the most efficient and convenient. At first I used 1 part to 15,000, then 1 to 8000, and finally 1 to 5000.

In the intervals of the dressings the patient wears a large pad of oakum to absorb the discharge.

As the cavity contracts and the discharge diminishes, the interval between the washings may be much prolonged; when the discharge becomes serous and does not exceed two fluidrachms, the tube should be withdrawn and the sinus permitted to heal.

If a spontaneous opening have formed in the chest-wall, the plan of treatment is not thereby modified. Such sinuses are badly

located, oblique, tortuous, and always ineligible for operative purposes. In such cases, proceed as though no spontaneous opening existed. After the operation, such openings speedily heal. Bronchial fistulæ are equally without influence in modifying the treat ment.

Since I have adopted the plan indicated in the foregoing sketch, namely, during the past six months, I have had under treatment five cases of empyema; three in the hospital of the Jefferson College, one in the Philadelphia Hospital, and one in private practice. Of these, three fully recovered, one died of heart-clot, and one is at present under treatment.

A CONTRIBUTION TO THE CLINICAL STUDY OF TYPHLITIS AND PERITYPHLITIS.

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In approaching the discussion of these common and important affections it is necessary to bear in mind several important points in which the cæcum differs from the rest of the large intestine. Thus its peritoneal investment is deficient over the posterior part, which is generally quite firmly attached to the right iliac fossa by connective tissue, containing a small proportion of fat. Its anatomical relations, moreover, indicate that the semi-feculent materials passing from the ileum are destined to be retained in the cæcum to undergo some important action. The ileum at its lower portion rarely has a calibre greater than one-third that of the cæcum, a circumstance which must materially retard the progress of the contents of the latter, and a further detention is caused by the ileo-cæcal valve, which prevents all reflux, and by the position of the cæcum, which compels it to force onwards its contents in opposition to gravity. The view that the cæcum is the seat of an important part of the digestive process, either in the appropriation of any remaining nutritious elements of the semi-feculent chyme, the absorption of its watery parts, or the elimination of some excrementitious matter from the system, receives confirmation from the very rich vascular and glandular supply of the walls of this part of the intestine.

In addition to this, the cæcum has opening into it, usually at its lower and back part, the appendix vermiformis, a narrow, elongated, glandular process, varying from three to six inches in length, and having an average diameter about equal to that of a goose-quill, although its calibre is quite small. It is usually directed upwards and inwards behind the cæcum, and lies coiled upon itself. Its function appears to be the secretion of a viscid ropy mucus.

We thus see in the anatomical and physiological relations of the

cæcum strong predisposing causes of many morbid conditions. Those which we meet with most frequently are:—

1. Simple fecal accumulation or impaction, resulting from muscular atony of the bowels, from neglected constipation, or from the ingestion of some indigestible substance which lodges in the cæcum, and serves as the nucleus around which fecal matter accumulates.

2. Localized inflammation involving one or all of the coats of the cæcum or appendix, and varying in severity from a very mild affection to one of violent and rapidly destructive character. It is probable that such attacks may occur where there is no previous irritation or impaction to predispose thereto, but unquestionably they arise much more frequently and in much more severe forms when the cæcum is already weakened or irritated by habitual distension from constipation, by the habitual ingestion of indigestible and imperfectly masticated food, or by any other cause leading to chronic congestion and catarrh. Under such circumstances, a single improper meal, a sudden congestion from exposure, a strain or a blow, may suffice to excite a severe acute attack.

3. Perforating ulceration of the cæcum or appendix, at times apparently idiopathic, but usually associated with the presence of some foreign body or hard intestinal concretion.

4. Inflammation of the pericæcal connective tissue, either primary or resulting from extension of inflammation from the walls of the cæcum, and frequently ending in suppuration.

So much attention has been bestowed on the operative treatment of these cases, since 1867, when Willard Parker published his mode of operation, that it is now important to emphasize the fact that, if I may judge from my own extensive personal experience, recovery results under appropriate treatment, without any occasion for surgical interference, in a very large majority of cases of typhlitis and perityphlitis, both in children and adults. Time will not permit the quotation in full of the records of the numerous cases I could adduce in illustration of this statement, and I prefer to limit myself at this point to the history of a single case, which is interesting in its relations to diagnosis as well as to treatment.

Case I.—E. S., age 16, a vigorous athletic lad, had been overexerting himself by study and late hours. In this sensitive condition he ate copiously of very indigestible food, and afterwards exposed himself to severe cold. He was taken sick, and almost immediately seemed very ill. There were present fever, severe abdominal pain referred to the right iliac region, frequent uncontrollable vomiting, and, after one or two small evacuations during the first forty-eight hours, obstinate constipation. Opium by the

rectum, calomel in small and frequently repeated doses, with counter-irritation to the abdomen, constituted the treatment at first. By the third day, when I saw him in consultation with Dr. Herbert Norris, the attending physician, the vomiting had been on several occasions distinctly fecal. The abdomen was greatly distended and extremely sensitive, so that it was impossible to determine whether there was any circumscribed swelling in the region of the ilio-cæcal valve, to which point, with the hypogastrium, the pain was referred. The temperature was about 103° Fahr., without corresponding elevation of the pulse-rate, which did not exceed 100. The favorite decubitus was dorsal with flexed thigh, though there was considerable restlessness. A blister was applied over the right iliac fossa, warm cataplasms kept over the abdomen, calomel in divided doses, one-eighth grain every three hours, substituted for the larger doses of one-fourth grain every two hours which he had been taking; also a suppository of quinine and opium, given by the rectum, so as to keep him mildly under anodyne influence. No nourishment was given save teaspoonful doses of koomis, chicken-water, and carbonated water. Vomiting ceased after the fourth day. The calomel was continued until about fifteen grains in all had been taken; no salivation being produced. No effort whatever was made to open the bowels. Opium and quinine were given freely by the rectum, and were gradually diminished as the fever and pain lessened. The fever subsided slowly, but the pulse fell more rapidly, and by the eighth or ninth day became slower than natural, about 60 in the minute. There was some return of thirst and desire for nourishment, but only the above articles were given in very small doses. The bowels remained closed for thirteen days, at the end of which time a natural and thoroughly digested evacuation occurred spontaneously, without mucus or blood. The subsequent convalescence was very carefully managed, and after strength and power of digestion were regained he was sent abroad for several months, and returned in good health, which has continued uninterruptedly.

The symptoms in this severe case, though somewhat different from those ordinarily met with, serve to illustrate the acute attacks of typhlitis.

The pain, which is usually the earliest and most marked symptom, appears suddenly, and is referred to the right iliac region; though, as here, the whole lower segment of the abdomen may be the seat of excessive pain and tenderness, due to implication of the peritoneum from an early period of the case. The pain is constant, but with spells of exacerbation. The patient lies on the back or towards the right side, with the right thigh flexed on the pelvis.

The abdomen is full or even distended, the right iliac fossa especially so; palpation is difficult, owing to the great tenderness, but in many cases, even from an early period, a more or less distinct tumor can be detected in the region of the cæcum. In the case of E. S. the tenderness and general distension were such that it was impossible to decide as to the presence or absence of this symptom. Tumor is of course more marked in cases where there is impaction, or where the pericæcal tissue is involved with considerable infiltration and exudation. In 17 out of 48 cases of acute inflammation of the cæcal region, recovering without abscess, a distinct tumor was present. Of these 48 cases, 19 occurred in children under fifteen years of age, in only 3 of which distinct tumor was present. In proportion to the extent and early appearance of tumor is the liability to subsequent suppuration.

Constipation is almost invariably present; only in rare cases are there loose movements, due to irritation of the lower bowel. When there is considerable fecal accumulation, severe tormina may exist from movements of flatus; and the distended cæcum may press upon adjacent nerves and cause pain shooting down the right thigh, or a numbness and even œdema of this part, with retraction of the right testicle. In the above case the constipation was marked, and attention is especially drawn to the fact, that the bowels were allowed to remain unopened for thirteen days, at the end of which interval a natural and thoroughly digested movement occurred. The difficulty of deciding as to the amount of fecal accumulation present; the fear lest the existence of irritating contents in the inflamed cæcum may favor ulceration, perforation, and pericæcal abscess; and the dread lest, on the other hand, the attempt to secure a movement of the bowels may prolong or rekindle gastric irritation with vomiting, disturb nutrition, and aggravate the local lesion; combine to render the management of this one condition of constipation in typhlitis a matter of excessive difficulty. The practical lesson enforced by such cases as the above would seem to be, that, so long as there are fever, local soreness, and pain, it is better to limit our efforts to the relief of pain and inflammation, and to restrict nourishment to the narrowest limits.

Vomiting is an almost constant symptom, and it may be frequently repeated and difficult to control, especially if purgatives or other irritating remedies have been given. It is comparatively rare, however, for it to be so distinctly fecal as in the case of E. S.

The attack is not usually ushered in by any chill or rigor; but marked fever soon appears, the temperature ranges from $101\frac{1}{2}^{\circ}$ to $103\frac{1}{2}^{\circ}$; the pulse is disturbed; the skin hot, the tongue furred, and

thirst and restlessness are extreme. I have repeatedly noticed a marked disparity between the temperature and pulse, depending upon an unnatural slowness of the latter. Not only may this obtain after the subsidence of the acute symptoms, when I have noted the pulse at 60, 50, or even lower; but while they are still pronounced, and the temperature is decidedly elevated, I have repeatedly observed that the pulse was not correspondingly accelerated (in a lad of 19, pulse 96, temperature $103\frac{1}{2}^{\circ}$), or even that with milder acute symptoms the pulse was normal or subnormal throughout.

I have observed the same thing in other forms of subacute localized peritoneal irritation, seemingly dependent upon an increase of the inhibitory pneumogastric influence; and as regards cæcal inflammation, it has seemed to occur in those cases where there was but a slight implication of the cæcal peritoneum. Such slowness of pulse has also been oftener noted in relapses than in primary attacks.

Case II.—A. B., seen in consultation with Drs. L. Bauer and Emil Fischer, was engaged in an ice-cream manufactory, and exposed to extreme and sudden changes of temperature. He had a mild attack of perityphlitis from which he recovered, but returned too soon to his occupation, and was seized with a second and more severe attack. The pain and tenderness were marked, the vomiting frequent, fever moderately high, and there was a distinct ovoid lump in the right iliac fossa, extending unusually high up along the ascending colon. After the acute symptoms had abated somewhat, although vomiting was still readily excited and the tumor was unchanged, there was an abrupt fall of temperature, and such a rapid fall in the pulse-rate, down to 42, as to excite anxiety. Nothing occurred, however, to interrupt convalescence, during which the pulse continued very slow; and with extreme care in diet, prolonged rest in bed, and very cautious medication, complete recovery followed.

This second case illustrates one of the peculiarities about these cæcal affections that has in my experience been the cause of the greatest amount of trouble. I refer to the liability to relapses, which in many cases is very strong, and in a few instances has proved almost insuperable. According to the violence of the original attack, the damage done to the affected part, and the constitutional susceptibility and tendencies of the individual, the subsequent course of such cases varies greatly. In some instances I have observed a series of successive attacks, five, eight, or even twelve in number, after each of which the local symptoms subsided

more or less completely, showing that no grave or permanent lesion was established. Of course the general health and nutrition suffered greatly, but with persistent hygienic and dietetic care, and suitable medicinal treatment, complete recovery has ensued. In less favorable cases, on the other hand, after the first, the second, or the third attack, the disease assumes a chronic form; the evidences of established local disease present themselves in the cæcal region; the general health suffers greatly; and it will only be by protracted and most vigilant efforts that the tendency to progressive and destructive changes can be averted. Fortunately, even when cæcal tumor with local tenderness, disturbance of digestion, and a liability to exacerbation on slight provocation, have existed for a considerable time, it is possible, unless a tendency to ulcerative perforation of the cæcum has been established, to effect a satisfactory cure. As an illustration of the more mild and favorable type of chronic or recurrent typhlitis, the following may be quoted:—

Case III.—J. L., æt. 19, was seen in consultation with Dr. W. F. Norris. Several years previously he had two attacks of typhoid fever, and subsequently at least two attacks of slight cæcal irritation. Towards the close of December, 1879, he was strained in a tussle, and had immediately afterwards a mild attack of typhlitis, with pain, extreme tenderness, fever, a yellow tongue, anorexia, a little vomiting, but not decided constipation. There was deep-seated, slight but distinct thickening, but no positive mass. He was treated by blisters, opium suppositories, blue mass and ext. col. comp. in small doses so that a daily soft evacuation was secured, absolute rest and strictly liquid diet. The fever subsided in about five days, and he improved, and, by January 5th, had entirely normal temperature. In about three weeks, following a short drive, he took cold, and had a relapse lasting four days, with a renewal of the local and digestive symptoms, and a maximum temperature of 102°. Similiar treatment was pursued. Convalescence was quite rapid, but he was still confined to the house, when, February 12th, he had a third attack, fever rising to 102.5°, pulse 104, with a renewal of local symptoms. By February 16th, the pulse was down to 50, and the temperature 97.8° in the morning. The temperature soon became normal, but the pulse stayed low for twelve or fourteen days. After this attack he was kept in bed until June 15th, when he began to move about very cautiously. During all that time his diet was most rigidly supervised, and consisted chiefly of fluids, such as milk, arrowroot, broths, and thin custard; soft egg and scraped beef with delicate stale bread were occasionally allowed.

Extreme care was paid to the maintenance of uniform temperature in the room as well as to his body and bedclothing.

Despite this care, however, there were successive attacks upon March 11th, lasting three days; April 8th, lasting four days; May 12th, lasting three days; May 28th, lasting two days; June 12th, lasting two days; June 28th, lasting two days; July 6th, lasting two days; September 12th, very slight, lasting only one day: in all, 11 attacks.

During the first part of this time he steadily lost weight until his weight fell to about 114, but subsequently it gradually rose to 136 on September 4th. It was noted, in regard to these attacks, that they progressively decreased in severity and duration. They were all attended with the same symptoms above mentioned; vomiting usually occurred once or twice at the onset; the tongue always grew thick and heavily coated; there was a great increase in the local tenderness with pain, and sometimes slight increase of thickening to the outer side of cæcal region. The pulse rarely rose above 100, the temperature rapidly attained its maximum, not exceeding 102 or 102.5°, and, as has already been stated, after each attack both temperature and pulse continued subnormal for a number of days, the temperature rising to normal more rapidly. In addition it was noted in the later attacks that the feces were flattened as if they had passed through a contracted space, and there were occasionally masses of whitish-yellow mucus, tenacious and stringy, and on two or three occasions, conical masses as though casts of the appendix.

The treatment pursued, in addition to the rest, diet, and hygienic care above mentioned, consisted in the prolonged use of small doses of nitrate of silver with opium, and later of mineral acids with strychnia, and repeated blistering. On the occasion of each attack the diet was made absolutely liquid, and small doses of blue mass and colocynth were given so as to cause one slightly soft stool daily.

After October, 1880, he appeared to regain fair health, and had no further trouble until May 20, 1882, a period of about twenty months, when, probably in consequence of taking cold after eating some indigestible food, he had a severe attack, temperature 103.8°, pulse 118, with severe local symptoms, lasting several days, and followed by a return of subnormal pulse, though this time the temperature did not fall below the normal. He was again strictly confined to bed, and the previous treatment was resumed. A second attack occurred July 2d, but it was brief and of slight severity, and convalescence was established by July 18th. After this he again seemed restored to fair health, although he has not regained his

former health, and has been easily fatigued, and has been obliged to be careful of his diet. Quite recently, May 1, 1883, without adequate cause, though, perhaps in consequence of over-exertion, there was a slight increase of local soreness with return of mucus in stools, and he was again confined to bed. There was no rise in temperature, but extreme muscular prostration. Subsequently to this he regained strength satisfactorily, and now seems quite well. The impression we received was, that, in consequence of the early attacks of typhoid fever and subsequent irritation in the cæcal region, slight thickening contraction of the cæcum had occurred, which had favored the frequent recurrences of attacks of typhlitis above related.

Among the points of peculiar interest about this case, in addition to the large number of relapses, may be mentioned the apparent yet deceptive periodicity, which on careful investigation was found to depend upon a correspondence of the relapses with marked barometric variations; the invariable occurrence of subnormal pulse and temperature after each attack; and the absence of distinct iliac tumor and of decided constipation.

To further illustrate the favorable conclusion of chronic typhlitis, even in cases where more definite local lesions have been developed, I would briefly refer to the following instance:—

Case IV.—Mr. F. P., was sent to me by Dr. J. H. Twitmire, of Sharpsville, Mercer County. In May, 1880, at 28 years of age, he had an attack of acute typhlitis. After a very hard day's work he ate a hearty meal of sardines; next day nausea and vomiting occurred; but despite this he travelled that day, though there was pain in the cæcal region. He was confined to bed for two weeks, and then seemed to recover, but in October of same year had a slight attack, and a much more severe one in December, which confined him to bed for four weeks. Subsequently, in the early part of 1881, there were three sharp attacks, with fully developed symptoms, each one lasting about a week. In the last two attacks there was detected for the first time distinct iliac tumor. I saw him first in May, 1881; he had then lost over twenty pounds, was anæmic and weak. There was an indurated swelling in the region of the cæcum, which was but slightly sensitive on pressure. The tongue was pale and flabby; the skin relaxed; the bowels irregular, the stools at times loose with mucus; the abdomen full, at times slightly tender, with sharp cutting pains across it; appetite good, but digestion delicate.

He was confined to his bed for a number of days, and was then allowed to exercise cautiously for gradually increasing periods.

His diet was rigidly restricted. A flannel abdominal belt was ordered, and strict attention paid to every detail of hygiene. Repeated blisters were applied to the cæcal region; and he took a prolonged course, interrupted at suitable intervals, of the following:—

Argenti nitratis, gr. vj.
Ext. belladonnæ, gr. iv.
Ext. opii, gr. ij.
Ft. mas. et div. in pil. no. xxx.
S.—One thrice daily.

Soon after I saw him there was a slight attack in consequence of imprudent exertion, but after this improvement was rapid. He was able to spend the summer in travelling on the lakes and at Duluth, and returned home in September, 1881, comparatively well, having gained considerably in weight. He returned gradually to business, but continued to observe strict care as to his diet, exertion, and exposure. From time to time there were symptoms of irritation, not amounting to an attack, but attended with stiffness, soreness, and distension of the abdomen. These were greatly relieved by rest, more carefully restricted diet, and a teaspoonful thrice daily, in water, of—

Chloroformi, gtt. ccxl.
Tr. cardamomi comp. q. s. ad f℥iij.—M.

An occasional blister was used, and the above pills were taken occasionally for short periods. A slight attack occurred in January, 1882, after which his recovery gradually became complete, and he continued in excellent health. The cæcal tumor gradually and completely disappeared.

Finally, as an example of the course of chronic typhlitis, with numerous exacerbations, where severe local lesions have been established, ultimately leading to perforation, abscess, and death, the following history is given at some length:—

Case V.—H. G. W., was first seen by me July 1, 1876, in consultation with Dr. Santee; he was subsequently seen on various occasions by Drs. Agnew, Dunton, and S. Weir Mitchell. He had received a blow three years previously in the right iliac region, and sufered his first attack of acute typhlitis in 1876, at the age of 24, in consequence of a severe wrench of his body. He made a good recovery, although there remained a slight circumscribed and indurated swelling in the region of the cæcum. He was able, however, to return to his business, and continued in apparently good health for several months. He stated subsequently, however, that he had continued to have transient spells of pain

in the cæcal region, increased by pressure or walking. He had been accustomed to have two stools daily, and this also continued; the stools being at times unformed or mush-like, especially when these signs of cæcal irritation increased. He attended regularly to business, however, until June, 1876, when, in consequence of indiscretions in diet and the contraction of a severe cold, a second attack of typhlitis and perityphlitis occurred, with all the characteristic symptoms, and with marked increase in the local symptoms. He was now treated with great strictness, was confined to bed for some weeks, had a series of blisters applied to the right iliac fossa, took a course of small doses of calomel with opium, and, when the acute symptoms had subsided and it was clear that the case would not terminate in suppuration, he was placed on the use of nitrate of silver in conjunction with skimmed-milk diet. This course was pursued because after convalescence began there still remained a distinct hard lump in the iliac fossa, evidently involving the walls of the cæcum and the pericæcal cellular tissue, and in addition to this there was a tendency to occasional unprovoked diarrhœal stools, with some mucus, justifying a suspicion of ulceration of the cæcum. The possibility of pericæcal abscess was most carefully discussed, but it was negatived, and the accuracy of this opinion was shown by the fact that gradually during the next six months there was restoration of good health, with progressive decrease of the hard swelling, until it could merely be detected on deep palpation, and with complete relief of digestive disturbances. The use of nitrate of silver was pushed in this case until discoloration of the gums was produced. (A careful study of the nature and value of this silver-line on the gums was published by me in *Transactions of Philadelphia College of Physicians*, vol. x. p. 39.) He again resumed his regular business, continued well for a number of months, and was married in May, 1878. Soon after this, apparently in consequence of excessive application to business, getting into poor condition, and then contracting a heavy cold, a fresh attack of inflammation was established. This proved more serious than any previous one, and despite the most rigid treatment it left behind serious and enduring lesions of the cæcum. Pain began to be felt along the branches of the lumbar and sacral plexuses of nerves, and permanent flexion of the right leg on the pelvis appeared. The iliac tumor was resonant, though very hard, and at no time could the least fluctuation be detected in it. There were no constitutional symptoms to indicate suppuration, and it appeared that the condition was one of ulceration of the cæcum with chronic inflammation of its walls and surrounding

tissues. Improvement again occurred, but from this time onwards the history of the case was of a series of distressing attacks, provoked by slight causes, and proving more and more difficult to control, and leaving more and more serious conditions behind, and with increasingly poor health in the intervals. The right leg became firmly fixed at a right angle with the pelvis, and grew much emaciated. Pain was of constant occurrence, and was complained of in the back near the right kidney, along the crest of the ilium, as well as down the right leg. Digestion became very sensitive, and, although care in diet was constantly exercised, a tendency to diarrhœa was frequently observed. No pus or blood was ever found in the stools, but not rarely mucus was present. Excepting at the times of the recurring exacerbations, there was for a long time no elevation of temperature, and very little acceleration of pulse. On one occasion in the summer of 1878, an attack occurred of so much violence and attended with so much inflammatory exudation into the iliac fossa that Dr. Dunton, of Germantown, under whose care he then was, Dr. Agnew, and myself confidently expected suppuration, and were prepared to operate. The symptoms again subsided, however, after confinement to bed for nearly six months, and, as on other occasions, a remarkable degree of improvement occurred. On another occasion during the last year of the case, while he was at Hot Springs, Arkansas, there was a sudden improvement in the condition of the right leg, which became movable, so that he could almost straighten it, and could walk a short distance with merely a cane, instead of using the crutch with a rest for his foot, to which he had been obliged to resort for a couple of years. This improvement proved very temporary, and within a few weeks the contraction was as great as ever. I could not satisfy myself by the most careful questioning, that, at the time of this sudden and transient improvement, there had been any discharge of pus; and yet it seemed not improbable, that a circumscribed abscess behind the cæcum, which had been pressing upon the nerves and the psoas muscle, had made its escape in some direction, and thus for a time had afforded relief. I saw him rarely after his return from Arkansas in the fall of 1881, and not at all after June, 1882, as I went abroad then, and he placed himself under the care of a homœopathic practitioner. From then until the date of his death, May, 1883, his condition grew worse and worse. Digestion was more sensitive, and diarrhœa more common; pain was constant, requiring anodynes; hectic fever appeared, with a tendency to night sweats, and with constantly progressive emaciation. Very shortly before death, evi-

dences of abscess were detected on the inner side of the right thigh. It was opened by Dr. William Hunt, and gave exit to a quantity of fetid gas and pus.

The post-mortem examination was made very carefully by Dr. Reichert, who has kindly furnished me with the following notes, and also placed the cæcum in my hands for examination.

Autopsy.—Great emaciation. On right-hand side the omentum, which contains very little fat, is attached to the abdominal parietes by a broad adhesion one and one-half inches long, this adhesion being over cæcal region. No fluid in peritoneal cavity, nor evidences of recent peritonitis. Stomach distended with gas. All viscera anæmic. Intestines everywhere distended with gas. No evidences of any general peritonitis, either recent or old.

On the outer side of cæcum there were evidences of an old inflammation, there being considerable adhesions. A small cystoid cavity was found between cæcum and abdominal parietes in the midst of adhesions, and in which was some gelatinous fluid.

It was difficult to tear cæcum loose from posterior wall. Behind cæcum the cavity of a fecal abscess was opened, and on examining the cæcum a hole was found in the posterior wall sufficiently large to admit a lead pencil, this hole communicating between the bowel and abscess. The hole had a smooth edge, evidently a cicatrized "button-hole." The cæcum itself was greatly contracted, and its walls were thickened and indurated from chronic inflammation. The abscess was traced beneath the fascia to the tissues behind the lower end of the right kidney towards the spinal column; a little above the level of the second lumbar vertebra. No disease of the spinal column.

Tracing the abscess downwards *one* sinus passed under Poupart's ligament to the front of thigh, close to the anterior superior spinous process; contents fecal. A *second* sinus, passing from the back of cæcum, passed alongside of the psoas tendon, then under Poupart's ligament to the inner side of thigh, burrowing back along ramus of ischium as far as tuberosity, which bone was denuded of the periosteum, and in pouch were found some small fragments of bone. No fecal matter was found in this pouch, only broken-down pus. (This pouch was punctured with an aspirator needle on the 11th inst., and about two ounces of broken-down pus drawn therefrom.) At the point of bifurcation of the above sinuses another sinus was found running back along the internal iliac artery into the pelvis for about an inch. Contents of this sinus fecal. All of the sinuses were lined by bluish-green inflammatory material.

Right kidney healthy macroscopically. Capsule easily separated. No cysts.

Liver greatly enlarged, quite yellow, pale, very friable. Gall-bladder distended, with pale yellowish bile, and contained two gall-stones. Spleen normal. Stomach distended with gas.

Lungs anæmic, but healthy—some hypostatic congestion. Old adhesion at base of right lung. No fluid in pleuræ. Heart healthy; very little fluid in pericardium.

It was the opinion of all who were present at this examination, that the original lesion had been chronic typhlitis with subsequent ulceration of the posterior wall of the cæcum, and that the perforation of the bowel at this point and the escape of its contents had started the formation of the sinuses above described. It is difficult to determine the date of this perforation, but it may not have been until within three to six months before death. The small cystoid cavity with gelatinous contents found on the outer side of the cæcum, imbedded in old inflammatory exudation, shows that at one time abscess formation was imminent, but there is nothing to indicate that an operation would have been of service. I cannot recall any question of practice which has given me more anxiety than that of operation in the above case, and on several occasions I summoned Dr. D. Hayes Agnew to discuss it with me, but invariably with the result of deciding that there were no adequate grounds for such a step.

Space forbids the insertion here of the notes of two painfully protracted cases of chronic typhlitis without perforation in adults, which came under my notice only after serious organic lesions had been established, and where repeated exacerbations occurred with the familiar symptoms, and with constantly progressive impairment of general health, derangement of digestion and local distress in the intervals, but without any symptoms of suppuration, and where the post-mortem examinations showed dense adhesions of the cæcum to the surrounding tissues, immense thickening of the walls of the bowel, extreme contraction of its cavity and disintegration of its mucous membrane, so that this part of the intestine had come to resemble merely a hard shrunken fibrous or cartilaginous capsule.

It must not, however, be supposed that when suppuration occurs, as it frequently does, either in consequence of or independently of perforation of the cæcum or its appendix, the symptoms and local signs are always so clear and positive that no difficulty will be experienced in making a diagnosis. So far from this being the case, it is not too much to say, that the unjustifiable delay permitted in many cases of typhlitis, whilst hoping day after day for the more definite detection of suppuration, is the direct cause of many avoidable deaths. It is true that ordinarily the approach of suppuration will be

announced by a change in the constitutional symptoms, by the occurrence of rigors followed by sweats, febrile movement of a remittent or hectic type, and increased acceleration of pulse. But, on the other hand, it is certain that, after an abscess has already formed, the general symptoms may merely indicate increasing gravity of the case, without presenting the above indications of suppuration. So, also, it must be borne in mind, that the existence of a pericæcal abscess may be unattended with the local appearances which usually accompany suppuration. In many cases where a considerable amount of pus has been found, the cæcal tumor immediately before the operation was hard, absolutely without fluctuation on palpation, and resonant on purcussion. This may be due to the fact that at times the pus is chiefly confined behind the thickened and inflamed cæcum, which is pressed forward against the abdominal wall; or, again, that the pus, either collected to the outside or in front of the cæcum, is so compressed by the tense transversalis fascia and abdominal muscles that fluctuation cannot be detected until an incision has been carried down to or through this fascia. The resonance which can then be detected on percussing over the abscess may be recognized as transmitted, and not dependent upon a collection of gas immediately beneath the surface. When the cæcum is pressed forward against the abdominal wall, the resonance will naturally be distinct and superficial. Occasionally, moreover, the abscess itself contains gas, when the resonance will be even more distinct on very light percussion; and in such cases, as the abscess approaches the surface, the skin becomes doughy and dark colored, and upon palpation a distinct sense of emphysematous crepitation may be obtained. The following case illustrates well some of the above points, while at the same time it exhibits clearly the absolute necessity for prompt operation and the brilliant results obtained.

Case VI.—P. F. M., æt. 38, commission merchant, who had been exposed to a great deal of mental anxiety, and had been out of condition in consequence, was attacked with typhlitis on the last day of December, 1882. The onset was gradual: he complained of pain in the right iliac region, with excessive tenderness and a distinct swelling in that region. The pain was not sufficiently severe to prevent his attendance to business, involving much walking. On January 5th he visited New York, and on his return in the evening of the same day he called in Dr. J. V. Kelly, of Manayunk. At that time there was a distinct tumor in the right iliac region, which was the seat of much pain and extreme tenderness. Temperature about 102° and pulse 95. He was treated by absolute rest, free leeching over the tumor, opium

and quinine internally, and the application of poultices. Although there was some relief from the pain, the indurated mass still continued in the iliac fossa. The pulse continued over 100, and the temperature ranged between 100° and 102°, and even 104°. There were also some vomiting, anorexia, and obstinate constipation. I saw the case with Dr. Kelly on the tenth day, when the question of exploratory operation was discussed, but owing to the extreme hardness of the tumor and the absence of sweating, it was decided to postpone it for the present. Towards the close of the second week several free sweatings occurred; the temperature continued high and the pulse rapid. I saw him again on the seventeenth day, and, although the mass was still hard and without any sense of fluctuation, and although resonance could be developed by careful percussion, and there was no infiltration of the abdominal walls over the seat of the disease, it was decided to call Dr. W. W. Keen in consultation, with a view to having the operation performed, which was done by him successfully on the twenty-first day.

An incision four inches in length was made through the skin, superficial fasciæ, and the three abdominal muscles, when, on inserting the finger to see if he could feel any fluctuation, on the slightest touch of the fingers, pus burst out through the opening. The pus was very offensive, distinctly fecal in odor, measuring about one pint. The fingers were introduced their whole length without touching bottom, and it was thought unwise in view of the thin walls to pursue digital examination any further. The cavity was then washed out with a carbolized solution, and a double drainage-tube, horseshoe-shape, introduced, and as judged by this the cavity was probably four and a half inches in depth. The bowel was not seen, and no foreign body was detected. Fully half a pint of pus was discharged during the succeeding twenty-four hours; afterwards the quantity rapidly diminished. The wound was daily washed out with the carbolized solution, and the whole operation was done strictly antiseptically. At the end of the first week the drainage-tube was gradually removed, and was entirely withdrawn in the third week, after which the wound rapidly healed. The temperature steadily diminished until a little accumulation of pus took place at the end of ten days, when he had a chill and a rise to 102°, but this promtly disappeared on the re-establishment of free drainage, and the patient recovered perfectly.

In another and equally successful case the operation was performed by Dr. C. T. Hunter, on the thirtieth day of the disease, when a fluctuating tumor could be readily recognized.

It seems difficult to realize, in view of the frequency of these

cæcal affections, and the large proportion of cases in which suppuration occurs, with frequently fatal results, that the first operations for its relief were by Willard Parker in 1843, and by Hancock in 1848. Although Parker performed the first operation, Hancock has the credit of having published the first record of a case so treated, in the *London Medical Gazette*, 1848, p. 547; but it may be confidently stated that the full recognition and acceptance of this operation dates from the publication of Parker's first paper in the *New York Medical Record*, in 1867. The operation is so simple, and, if properly performed, so free from danger or complications, that it is to be hoped that hereafter the indications for its performance will be more clearly recognized and more constantly borne in mind, not by surgeons only, but by the general practitioners under whose care such cases come, and by whom the necessity for the operation must be recognized, even if they prefer to call in a consulting surgeon for its performance.

In deciding then upon this question, it may be said that no doubt can longer be permitted as to the necessity for operating as soon as the existence of pus is recognized or even strongly suspected. In support of this statement, if support be needed, I quote the following figures from a valuable paper on perityphlitis, by Dr. Robert F. Noyes, of Providence (*Trans. R. I. Med. Society*, vol. ii. Pt. VI. 1882, p. 507), which has come into my hands since I presented the present informal communication to the meeting of the Pennsylvania State Medical Society. In 1872, Dr. Bull (*N. Y. Med. Journ.*, 1873, xviii.) analyzed 67 cases of perityphlitic abscess; of this number there were 32 deaths, a mortality of 47½ per cent. Although some of these cases were saved by operation, the majority occurred prior to the general adoption of Willard Parker's procedure. In a series of 100 cases of perityphlitic abscess, treated by operation, which have been collected by Dr. Noyes (*loc. cit.*), the mortality was only 15, or 15 per cent. To this table may now be added the two successful cases here reported.

Of course it is to be understood that our remarks and the above figures apply to ordinary cases of typhlitis or perityphlitis, with the formation of a circumscribed abscess with or without perforation of the cæcum. But the case is very different in regard to the unfortunate instances where there occurs perforation of the appendix vermiformis without any well-defined tumor or circumscribed collection of pus. The symptoms are not necessarily urgent, the question of operation can scarcely arise, and the occurrence of the perforation is usually marked by the symptoms of rapidly spreading and fatal peritonitis. I have met with not less than six fatal

cases of this character, and Noyes states that of forty-seven such cases analyzed by Dr. Lewis, forty-six died. It is unquestionably true that a few cases of this kind recover owing to the formation of adhesions which circumscribe the fecal matter and pus escaping from the appendix, and in all probability a small percentage of such cases are included in Noyes's table, though it is impossible to discriminate them. A number of years ago (*Amer. Jour. Med. Sci.* 1867, vol. 54, p. 148), I reported the results of an autopsy made upon an old man, who died from vesical hemorrhage, in whom I found that there had, at some unknown previous time, been perforation of the appendix. But such a favorable result must be extremely rare.

It is impossible, however, to lay down positive rules to govern the time when the operation for suspected cæcal abscess shall be performed. It is not safe to wait until fluctuation appears, for we have seen that this may be absent when a considerable amount of pus is present. It is not safe to wait for chills or sweatings, for these may be delayed until the danger of the case is greatly increased by burrowing of pus or by perforation of the bladder, rectum, or some hollow organ. Even the well-defined or circumscribed tumor may not be present, but merely a diffused, poorly limited, and resonant swelling, and yet a considerable amount of pus may be collected behind the cæcum. It is not possible to fix a date before which the operation should not or after which it should be performed: the earliest date at which it has been done is the fifth day; more commonly it is called for between the eighth and eighteenth day; but as stated in a very practical editorial in the *Medical News* for Sept. 2, 1882, it has been performed successfully after even two years.

Every effort should be made then to prevent suppuration, and if after eight or twelve days there is any improvement, even slight, we should persevere in our attempt to secure resolution and a final complete cure. But if, on the other hand, after such a period the general symptoms persist or grow aggravated, or still more if they assume a hectic type, and if the local conditions remain the same, or still more, if increased prominence of the swelling, discoloration or œdema of the abdominal wall, or fluctuation becomes apparent, an exploratory puncture or incision should certainly be made, to be followed by the complete operation, as recommended by Parker, if the presence of pus be demonstrated.

The general character of the treatment to be adopted in acute typhlitis has already been indicated. Its prime object is to reduce the inflammation so that suppuration shall not occur. There is scarcely any danger of a fatal result unless an abscess forms.

Indeed there must be very few, if any, cases on record of acute typhlitis proving fatal, in which post-mortem examination did not show the existence of perforation of the cæcum or appendix. When the patient is first seen, if the pain and signs of local inflammation are not severe, and particularly if indigestible articles have recently been eaten, or there is evidence of fecal accumulation, a mild laxative should be given. This may consist of small doses of a saline, as liquid citrate of magnesia, repeated at short intervals, or of calomel, as for instance one-eighth or one-fourth grain every hour or two hours, until the bowels are opened or until several grains have been administered. From time to time the attempt may be made to assist the action of the laxative by a tepid unirritating enema. So soon as one free movement has been secured, no further laxatives should be permitted. Nor if, after a moderate trial of the gentle remedies above recommended, the bowels remain closed, should any further effort be made. The irritating contents of the bowel have done what harm they could, and their presence at this stage is less injurious than are attempts to force them away by irritating purgatives. I would refer to the result in Case I. as an illustration of this point of practice. From the earliest moment absolute rest is essential, the bed-pan must be put in use at once, and even the restless motions of the patient should be discouraged or quieted by opiates.

The vomiting should be promptly allayed. The surest way to secure this end is by avoiding the introduction into the stomach of all save minute amounts of light, soothing, liquid nourishment, and of small doses of sedative laxatives, such as effervescing citrate of magnesia or of calomel. Small doses of opium by the rectum or of morphia hypodermically will assist powerfully in quieting the stomach, and will not interfere seriously with the laxative action sought. If even the unirritating articles above mentioned are rejected, the stomach must be allowed absolute rest for a number of hours, and the use of opiates be continued. This will usually effect the object in view, and then the administration of cracked ice, spoonful doses of champagne, whey, koumiss, chicken-water, may be cautiously resumed. Calomel, it seems to me, should be continued throughout the acute stage, the size and frequency of the doses being reduced after its laxative effect is no longer sought, so as to avoid the risk of salivation.

Opium is the most important remedy; and so soon as the question of the early movement of the bowels is settled, sufficient doses should be given to insure relief of pain and moderate repose. Suppositories of the watery extract appear the most manageable and

unobjectionable form, and a further advantage of these is that sulphate of quinia may be combined with the opium in doses proportionate to the age or degree of fever. Quinia is undoubtedly not so efficacious when given in suppository as it is by the mouth, or when thrown in solution into the rectum. But if the suppositories are freshly made, and particularly if a very small amount of dilute sulphuric acid is added, it is easy to obtain full cinchonism; and in cases such as we are considering this constitutes the best form of administration. It is desirable to have two forms of suppositories, one of quinia alone, the other of quinia and opium; so that five or six grains of quinia may be given every three hours regularly, while one-half to one grain of ext. opium may be given at the same time, or less frequently if not required by the symptoms.

If the evidences of local inflammation are severe, leeches may be applied in a circle around the position of the cæcum, leaving the cæcal region for the application of a blister, which seems to me desirable on the third or fourth day. Light warm applications, as a batt of uncarded wool, protected outside by thin rubber sheeting or oiled silk, or a skilfully made poultice, should be kept constantly over the abdomen.

In favorable cases the fever subsides after four to seven days, the pain disappears, but there may be no movement of the bowels, and a distinct tumor may still be felt, which we may suspect is in part due to fecal accumulation. My own practice is to gradually withdraw the opium, and to continue to restrict the diet carefully so as to prevent any considerable increase of the accumulation or any forcible peristalsis; but if, after several days further, the bowels continue closed, it is necessary to begin the use of a mild laxative to favor increased intestinal secretion, and the gradual softening and dislodgment of the accumulated feces. For this purpose the following may be used:—

Ext. colocynth. comp. gr. xxiv;
Ext. belladonnæ, gr. ij;
Ext. nucis vomicæ, gr. iij;
Ol. carui, gtt. viij.
Ft. mas. et div. in pil. no. xxiv.

One every three or four hours, for an adult, until an action of the bowels is secured.

Or the following, which gave excellent results in a desperately bad case of typhlitis in a middle-aged woman, where, after the relief of the vomiting, pain, and fever, a large cæcal tumor, evidently in large part fecal, remained for days:—

Tr. opii deodoratæ, gtt. xl;
Ol. terebinthinæ, gtt. cxx;
Ol. ricini, f℥ij;
Pulv. acaciæ, sacchari, āā q. s.;
Aq. menth. viridis, q. s. ad f℥v.
Ft. mist. S. Dessertspoonful every three hours until the bowels are moved.

Having then conducted the case beyond the dangers of the acute stage, including that of abscess formation, there remains the extremely important question of the management of convalescence so as to guard against relapses and the gradual establishment of chronic typhlitis. Judging from the large number of cases of relapse, and of the chronic form of the disease which come under my observation, I am satisfied that the importance of this part of the treatment is not sufficiently appreciated.

It must be borne in mind, that, so long as the slightest swelling or thickening remains in the iliac fossa, there is a morbid condition which will readily be excited to activity on the slightest over-exertion or indiscretion; and, moreover, that even where no swelling can be detected, there may be ulceration of the cæcum which will reveal its presence, if at all, only by slight intermittent diarrhœa and the discharge of mucus; and, finally, that even where no such serious lesion remains, there may be a subacute catarrh of the cæcum left behind. Not until there is complete restoration of weight, strength, and digestive tone, should our precautions as to diet, exercise, and hygienic care be relaxed. A few additional weeks or months devoted to securing complete cure will save an incalculable amount of future trouble and danger.

If, however, such precautions have been neglected, or if, in spite of them, the case passes into a chronic form with occasional exacerbations, and with evidences of continuous cæcal irritation, there is presented for treatment one of the most troublesome of curable affections. The dangers are great: at any time an acute exacerbation may induce or hasten ulceration, and lead to perforation and abscess; slow thickening and contraction may progress until organic obstruction ensues; or slowly spreading peritonitis may be developed without perforation. It is essential, therefore, that the patient, who frequently feels able to continue his usual avocations, although below par and liable to transient attacks of cæcal trouble, shall recognize the necessity for a complete cure, and abandon himself to the regimen required. It is not necessary to enter here into all the details of the treatment required for the cure of this, as of other serious chronic intestinal catarrhs. It includes the choice of suitable residence; the direction of carefully regulated exercise,

with abundant rest; the use of proper clothing, with especial care to protect the abdominal region by a broad flannel belt; prolonged mild counter-irritation; courses of alterative astringents, such as nitrate of silver, chloride of gold and soda, or iron with minute doses of bichloride of mercury; together with nutrients such as cod-liver oil; but, above all, it is essential that most scrupulous care shall be paid to the diet. In all cases this is the most important part of the internal treatment, and not rarely a cure can be effected only by a protracted course of milk diet, or of minced meat, lightly broiled and taken in connection with the free use of hot water, but with very little starchy food. The partially digested food preparations, made after the receipts of Roberts, are often of extreme value. When complete control of the patient can thus be secured, the prognosis, even of cases of long standing, where numerous relapses have occurred and considerable thickening of the cæcal tissues exists, is by no means unfavorable, although long and assiduous treatment will be required to obtain a cure. The prognosis of typhlitis in general has, perhaps, been sufficiently indicated; and the space at my disposal forbids me to enter upon the various interesting questions as to the differential diagnosis of the acute and chronic forms of cæcal disease.

CLUB-FOOT; SIMPLE MEASURES FOR ITS EARLY RELIEF.

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The object of the present paper is merely to bring to the attention of the Society a few facts with which all are perfectly familiar, yet the importance of which seems frequently to be overlooked, even by experienced practitioners. It is not an uncommon occurrence to have able and skilled physicians send little patients to my office, whose feet have been neglected for six, ten, twenty, or even more months, the only explanation for such abuse being that they were "waiting for the child to be old enough for operation."

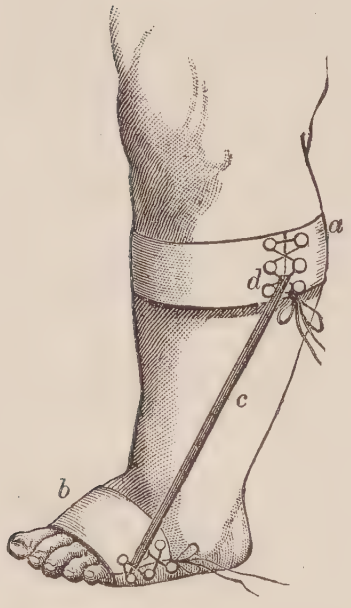
During the waiting process, the contracted tissues have become more dense, the enfeebled muscles more relaxed, and the bones themselves badly distorted and wedge-shaped, especially after the weight of the body has been made a causative agent in the deformity. The soft condition of the bones will permit even the constant dragging of the clothing to convert a moderate degree of obliquity into one of severe type.

My desire is to demonstrate that simple treatment can be so readily and easily applied by every one that it should he instituted at the very hour of birth, and should be continuously employed until a cure is effected, either with or without tenotomy. Any one taking a case of moderate talipes in his hand, will perceive that slight traction will greatly improve its condition, and he will also note, that, if hand-pressure could be continuously applied, the deformity would be permanently cured. As this is impossible, however, we must approximate this action as nearly as possible, by instructing the mother or nurse to stretch every contracted tissue, whether fascial, muscular, or ligamentous, at least twenty times a day and to the full limit of the child's endurance. At the same time, the weakened muscles must be stimulated to activity, by the use of

massage, friction, electricity, etc. Intelligent manipulation is safe, easy, and effectual, and all forms of mechanical assistance must be so contrived that the considerations mentioned can be secured. After many experiments I have been able to carry out this idea in the most simple manner, without the use of rigid braces, with no danger of sloughs or excoriations, and without interfering with the normal and healthful action of the muscles. Furthermore, the apparatus acts continuously during the relaxation of sleep; is easily removable for massage, friction, etc.; can be worn inside an ordinary shoe; does not absorb urine or feces; and, above all, permits the mother to rectify the deformity by hand-pressure without removal of apparatus, whenever the child is in her lap.

The cost is but a trifle, as it consists only of two strips of "printer's blanket, two ply" (gum with cloth facing, or ordinary gum blanket will answer), two to three inches in width, and of length as required, together with a gum band such as is used for inclosing packages of papers. A shoemaker will insert eyelets or lace-hooks into these strips in five minutes, and one is then laced upon the leg below the knee with the gum face inward (Fig. 1, *a*), the other around the anterior part of the foot, *b*, if the case be one of varus. Between the two is stretched the gum band, *c*, the strength depending upon the age of the infant. Sizes, $0\frac{1}{4}$, $00\frac{1}{2}$, $000\frac{3}{4}$, 00001, or five inch will answer. The advantage of girths of printer's blanket over cloth or wet sole-leather similarly prepared, consists in the fact that at the temperature of the body they becomes slightly adhesive and do not readily slip. Should the encircling bands show this tendency, however, sheet gutta percha softened in hot water, or "gum soling" "medium grade," can be used for cinctures, which will effectually check such turning. All of these articles can be obtained at trifling cost by writing to the Goodyear or National Rubber Company stores in any city. The adhesive property of the gum prevents the necessity of lacing tightly and thus interference with circulation is avoided, while frequent washings of skin and apparatus will prevent excoriation. In infants, eyelets are better than projecting lace-hooks, and the gum traction band can be secured by the lacings *d*; a slit cut in the shoe allows exit for this band, yet is very inconspicuous. The pulling

Fig. 1.

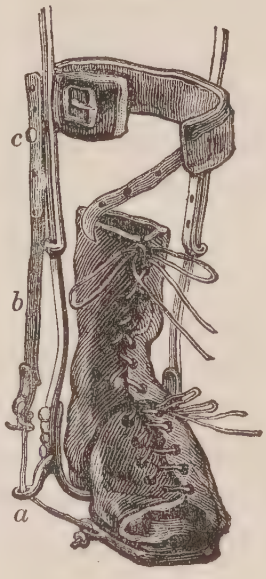


power can be increased as rapidly as the straightening advances; and by the time that the child is able to walk, it will be discovered, in moderate degrees of deformity, that tenotomy, at first thought inevitable, will be unnecessary, and even if required, in severe cases, the manipulations and stretching will have so assisted the operation that relapses will be far less frequent.

I maintain that before the physician leaves the house after the birth of a child, he should unroll the deformity with his hands, and fix it, either by carrying an adhesive strip around the anterior part of the foot and up the side of the leg, or by binder's board or sole-leather cut roughly into the shape of a boot split in the median line, then wet and moulded into position. At this time also measurements should be taken, and at the next day's visit, after a few moments' work at the shoemaker's, sole-leather encircling bands can be wet and applied, even if the rubber or printer's blanket cannot be secured for a few days. If gum bands are not at hand, any elastic material will answer temporarily for the traction power.

The cheapness, the effectiveness, and the simplicity of this dressing will, I think, commend it to your consideration, especially for poor patients. When the individual can afford an apparatus, the same principle can be carried out by the plan adopted by the author of riveting an arm to the ordinary stirrup used in steel uprights for club-foot shoes, at the end of which arm is an eye (Fig. 2, *a*), through which plays a catgut cord attached below to the shoe opposite the heads of the metatarsals, above to an elastic webbing (*b*), running up to be fastened to a button (*c*) at the top of the upright. An inexpensive joint, which permits motion in every direction upon the ball-and-socket principle, is formed opposite the medio-tarsal articulation by simply paring down the sole for a half inch in front of the stirrup to the thickness of a sheet of paper. If the child is not walking and there is consequently no danger from the introduction of dampness or dirt, the toe portion of the shoe can be made separately from the heel, being joined to it only at the sole, and there by means of a strip of soft upper leather. Such a shoe costs but little, and fulfils most simply and perfectly the indications required, *i. e.*, the rectification of the deformity at the calcaneo-cuboid and astragalo-scaphoid articulations and the stretching of the plantar fascia and contracted gastrocnemius and soleus, should the case be one of varus.

Fig. 2.



This shoe also permits the mother to correct the deformity by hand-pressure many times daily, without removal of apparatus, and it can be taken off in the morning and evening for the institution of those most important measures, friction, electricity, shampooing, etc.

The advantage of the plan above mentioned over that of fixing the foot is self-evident, but when, through ignorance or inattention, manipulations cannot or will not be carried out, some improvement can be gained each week by the repeated applications of plaster-of-Paris dressings, which shall keep pace with straightening as it advances, each one being brought into a position more normal than its predecessor. Such a dressing, unless cut open, cannot be removed for the daily stretchings, but it has its application in certain cases as named above. Silicate of soda, glue, starch, or any stiffening material will answer, but are not equal to gypsum, as the foot must be held in position during the "setting" of the material, and nothing hardens as rapidly as plaster, especially if table-salt is added to the water.

If these rigid dressings are preferred by any one to the elastic traction, the foot can also be fixed by sole-leather moulded to its side; or felt, binders' board, sheet-lead, tin, etc., can be employed for the same purpose. They are all open to the objection that, although removable, they prevent any manipulations while they are *in situ*, and few poor mothers can afford a dozen times a day to take off even a simple contrivance. Moreover, they are easily rendered foul in infants, and weaken rather than develop muscular fibre.

Barwell's dressing becomes speedily soiled in young children, and even in older subjects, while fulfilling the indication of elastic tension, it absolutely forbids the more necessary one of friction, massage, etc., without which but little permanent good can be obtained, since the enfeebled muscles are the ones which most need our care and attention. Neill's talivert is also only serviceable for temporary use.

Should these means fail to overcome the deformity, subcutaneous division of the contracted tissues can be performed, followed by the use of the same measures as before mentioned. The preliminary treatment will prove to have been of immense advantage in preventing those relapses which are so common when physician and patient are impressed with the false idea that tenotomy is the principal means of cure for club-foot. The object of this paper, however, has been to discuss talipes only from the stand-point of simple and inexpensive measures for early relief.

SOME REMARKS ON SCARLET FEVER.

By E. O. BARDWELL, M.D.,
EMPORIUM.

I HAVE been led to prepare a short paper on scarlatina, not so much by the fact that I have made a careful study and analysis of 176 cases, as by the fact that this study has confirmed me in the adoption of some views concerning this disease somewhat different from those held by many of the profession.

I shall not attempt to give a complete history of the disease, but merely a few points in the history of these cases, and the deductions drawn therefrom.

During the winter and spring of 1878–9, 150 cases of scarlatina, occurring in and about Emporium, were treated by Drs. De Long, Heilman, and myself; it being convenient and interesting for us to do so, we met nearly every day, and compared notes and made urinary examinations. Dr De Long, the microscopist of the party, is well known throughout Cameron and the adjoining counties as a physician of skill and ability in the use of the microscope.

Of the 150 cases the urine from 80 was carefully examined, and in every one, without a single exception, were found either albumen, blood-globules, or tube-casts; in 21 cases, albumen was found without other abnormalities; in the remaining 59 cases, epithelial cells from the tubuli uriniferi, blood-globules, or tube-casts were found, either with or without albumen. In 9 cases only albumen was found during the first four days of the febrile movement, but in no instance were tube-casts or other microscopic abnormalities discovered before desquamation had commenced. The disease, as it prevailed at that time and place, was neither mild nor unusually severe, the temperature averaging at its maximum 105°, reaching in several cases which recovered 107°, and the pulse 140, reaching in at least one case which recovered 200. The throat affection was a source of much anxiety in some of the cases, and in all required some attention, many cases were complicated by enlargement of the sub-

maxillary and parotid glands, 5 of them to such an extent as to make the use of the bistoury necessary.

April 23, 1879, I was called in haste to see a case twelve miles distant, and, the train being on time, I reached the house within an hour, when I was met at the door by the information that I was too late; the patient, a girl of 12 years of age, was insensible and strongly convulsed every few minutes, her eyes were in a state of nystagmus, the pupils insensible to light, and the heart pulsating at the rate of 200 beats per minute; she had voided no urine for twelve hours previously, and very little for two days. She had had an attack of scarlet fever three weeks before, but it had not been thought necessary to call a physician. The patient had been in this condition since 5.30 P. M., it was now 8 P. M. I immediately ordered water to be made hot, and forced down her throat a large dose of compound jalap powder in solution, together with ten drops of tr. digitalis; the digitalis, with five grains of bitartrate of potassa, was continued every half hour till 11 o'clock. The water was brought in as hot as I could bear my hand in it, and the patient was placed therein; she had her last convulsion while in the bath the first time; she was taken out shortly, wrapped in flannel blankets, and a mustard plaster applied to the lumbar region; this process was repeated five times from 8.30 till 11 P. M., at which time she recognized her father; at 12 o'clock a watery evacaution from the bowels took place, and her recovery from this time on was gradual but complete.

A similar case occurred about the same time, but it had been treated by a quack with irritant diuretics, and although regular medical attendance was at last called, and much the same treatment pursued, the patient died comatose.

Soon after I was called to see Mrs. C. B., aged 33 years; in four days her temperature had reached its highest point, 106½°; it then gradually declined till the seventh day, when it commenced to rise again, and albumen began to appear in the urine; her improvement was very slow, and she suffered much from insomnia; during the third week, against my better judgment, I administered morphia. She rested better the night following, but the next day she had excessive cephalalgia and uræmic vomiting; no urine being voided that day, I used the catheter, getting about two ounces loaded with albumen, and also containing tube-casts and blood-globules; the next day small abscesses made their appearance in different parts of the body. She was treated with hydragogues and hot fomentations, as seemed to be required, and braced up with tonics, but improved very slowly. The ninth week, with a director, I evacuated

a large deep-seated abscess in the left axilla; from this time on, her recovery was continuous though very slow, it being six months before she had entirely recovered her strength, which she finally did, however, and is now perfectly well in every respect.

I have noticed, in those cases where, the temperature being high and the pulse rapid, the eruption has remained rather scanty, that the symptoms referable to kidneys, and the mucous membrane lining the bronchial tubes, stomach, and intestines, have been much increased in intensity; not, as I believe, by metastasis, but by a natural selection of those situations for the chief elimination of the morbific principle in that particular instance.

The pain in the chest, stomach, and bowels, frequently met with, would seem to indicate a certain amount of efflorescence in those cases in which it occurs, while the microscope furnishes irrefragable proof of the existence of inflammation and subsequent desquamation of the mucous membrane lining the tubules of the kidney.

The treatment of the whole number of cases was very much the same, varying only in minor details, as the exigencies of the case seemed to demonstrate, but all based on the theory which the subsequent history of 176 cases supports to a marked degree.

By the study of these cases my opinion has been verified, that the nephritic lesion is not a sequel, but a concomitant, and that it obtains in every case of scarlet fever to a greater or less extent; if this is true, then the kidney lesion is the most important feature to bear in mind, and is the primary source of danger, leaving out those exceptional cases, where the throat affection assumes a diphtheritic character, or where the pyrexia is so excessive as to paralyze the nervous system and cause death by asthenia. Understanding the action of the kidney, and believing it contains a dangerous element, our treatment is in all cases, regardless of non-severity or malignancy, addressed to some extent to this factor.

In all febrile disorders the cardiac organ is weakened, the pulsations are weaker than normal, and usually faster as well. As a direct consequence, the muscular walls of the renal arterioles are lax, and, although the circulation may be rapid, the tense walls of the renal arterioles, the high arterial tension which favors osmosis, and the consequent separation of the urinary elements from the blood are wanting, and the amount of urine secreted is abnormally small. During defervescence in other pyrexiæ, the urinary secretion becomes augmented as the condition of the circulation improves, and no bad results follow. In scarlet fever, however, the case is different; if proper remedies have not been used, when the urinary secretion begins to be increased, the uriniferous tubules may be so blocked

up with desquamating epithelium as to prevent the passage of any urine into the ureters, and fatal uræmia rapidly result. Theoretically then, we desire, from the first, a remedy which shall increase arterial tension in the Malpighian bodies, mildly stimulate the secreting element of the kidney, and at the same time have a demulcent effect in passing over the irritated epithelium of the tubules. We have no one remedy which meets these indications, but in digitalis and potassium acetate we have a combination which will do the work required, and more, for digitalis slows the heart's action, and, perhaps, has some apyretic properties as well.

Belladonna increases arterial tension, but does not slow the heart, and is not so much to be depended on. The potassium is a slightly stimulating demulcent, and increases the secretion of urea.

From a scientific standpoint, this treatment is a natural corollary from the study of the pathology of this lesion, and it is fully borne out in practice.

For the throat complication the muriated tincture of iron is an excellent remedy, and its action on the kidney is favorable as it increases the elimination of urea; for the cephalalgia which is frequently excessive, potassium bromide should be used, as it is not only efficacious, but has a slightly diuretic action. Morphia, or any of the preparations of opium, should be carefully avoided, as, after the first very transient effect, they decrease urinary secretion, and the elimination from the blood of all its constituents.

The increase of temperature will usually need attention for several days, as the insomnia, jactitation, and other nervous phenomena which may exist, are caused by the excessive pyrexia. Quinia has to be given in large doses to produce any lowering of temperature, and it is then only temporary, unless the natural time for defervescence has arrived; such doses irritate the stomach and decrease the elimination of urea; quinia in scarlet fever is worse than useless.

In tepid water we possess an apyretic which is harmless and of decided benefit; it may be employed either by sponging the surface, or by the use of the bath or pack, according to the urgency of the case; during its use the temperature falls, the nervous symptoms disappear or are mitigated, and the patient is soothed and restful, often falling into a quiet sleep immediately thereafter; when the temperature rises again water may be used again, and the temperature be thus kept down to a point compatible with ultimate recovery. In treating any complications which may arise, if I am correct in my views, it is important to administer only such remedies as will not have a deleterious effect on the kidney. During the four years following this endemic, I have attended twenty-six cases of scarlet

fever, with mortality *nil*. As far as the clinical history is concerned, they may as well be classed with the others in every way, as they were of about the same severity, followed the same course, and received the same treatment, and there is no reason for wearying you with their history in detail. As before stated, the one hundred and seventy-six cases all received essentially the same treatment, that briefly sketched above; of the whole number five died, the one spoken of treated primarily by a quack, two which succumbed within twenty-four hours, overwhelmed by the intensity of the attack at the onset, and two which died from the effects of diphtheritic complication. A quack, who pretends to be a Homœopathist, had during this time, as near as I can estimate, about thirty cases, six proving fatal, not including the one which concluded to die on a physician's hands. Now, if he used Hahnemann doses, it would look as though the let-alone treatment was not the proper thing in this disease, while if he used appreciable doses, as I am inclined to believe he did, it would appear that improper medication must have been injurious and fatal. While I fully appreciate the value of rest, diet, and colored water, still my experience with scarlet fever, unlike that with many other diseases, leads me to believe that sometimes medication is markedly beneficial. I am fully aware that the majority of these cases would have recovered without any medical attendance; but, on the other hand, I am equally certain that the remedial agents employed saved some lives. A mortality of five in one hundred and seventy-six cases is rather low, and I believe that treated from a false pathological standpoint no such results could be obtained, and if the pathology is correct, then the above is the rational plan of treatment, and the science and practice of medicine have met in the treatment of scarlatina as they have in few other diseases.

OUR ASYLUMS AND OUR INSANE.

By SAMUEL AYRES, M.D.,

ALIENIST AND NEUROLOGIST TO ST. FRANCIS HOSPITAL, PITTSBURG,
FORMERLY OF THE DIXMONT INSANE ASYLUM.

The active agitation of matters relating to the insane in our own country, during the last few years, has been productive of good results. It has awakened a spirit of inquiry into the condition and needs of this helpless class. It has led to investigation into prevailing methods of care and treatment, and to enlightened legislation in their interests, and for their protection. The New York Neurological Society took the initiative in this more recent alienistic movement, and deserves much credit for its earnest advocacy of lunacy reform, and for the energy with which it prosecuted investigation into asylum methods and management in its own State.

As an outgrowth of this late general discussion, we have now an organization whose avowed objects are reform and progress in all departments of psychiatry, and which, though of recent origin, has grown with such remarkable rapidity, that it is now a strong and vigorous body exerting a powerful influence in behalf of the insane. I refer, of course, to the National Association for the Protection of the Insane and Prevention of Insanity. Individually, as well as collectively, this spirit of activity throughout the sphere of lunacy and psychological medicine has been evidenced by numerous contributions from able alienists and neurologists, and by frequent papers before medical bodies.

Under the impetus thus given, reforms in management and treatment have been inaugurated in some of the asylums, and carried out with commendable zeal. Convinced that the subject is by no means exhausted, that there is need for improvement in many branches, and that valuable recommendations have been forgotten or ignored, I beg to submit a few observations and suggestions based upon experience and some study of the subject.

It is not the purpose of this paper to detain you with a discus-

sion of the comparative merits of the *cottage* and *compact* system of hospital construction, nor weary you with the details of organization, general arrangements, or statistics of asylums. These subjects do not particularly concern us at this time. It is to some features of the management, and to the administration of the internal affairs of these institutions in their more direct bearing upon the inmates, that I desire to call your attention.

That there is, in the minds of persons competent to form an opinion on the subject, much dissatisfaction with the present management of our asylums, and a growing distrust in their efficiency as places of cure for the insane, cannot be doubted. Nor is it uncommon to find those who have passed some years in these institutions as medical officers sharing this distrust and criticizing[1] some peculiarities of the system which have given rise to it.

What is the cause of this general dissatisfaction and want of confidence? Is the system defective? I shall endeavor to answer these questions as they relate to the following subjects, and will propose under each paragraph what would seem to be the remedy needed.

1. Superintendents.—It matters little, I believe, how splendidly built and equipped is the asylum, how attractive and healthful its location, how complete and systematic its organization, how perfect its arrangements for heating and ventilation, how fine its furnishing, or how faithful its board of managers, if the superintendent be not a humane and scientific physician, whose heart is in his work, and who gives his entire time to the study and treatment of his patients. If he fail in these, the inmates will be neglected, the percentage of cures will be reduced, and abuses of various kinds will be frequent; while the chief end for which the asylum is erected—viz , the cure of the curable, and the proper care of the incurable—will be, in a great measure, defeated. I beg to differ with the author of *Hospitals for the Insane*,[2] or with any one else who holds that the ability to prescribe for the insane, or to scientifically conduct a pathological investigation, is a secondary qualification in the chief medical officer of an asylum; or that attention to the medical, moral, and hygienic treatment of patients, is rather subordinate to administrative duties.

There is no disguising the fact, that a superintendent cannot be

[1] The Penn Monthly, vol. x. No. 119, p. 835, G. Betton Massey, M.D., On the Organization and Management of State Hospitals for the Insane.

[2] Kirkbride on Hospitals for the Insane.

at the same time purveyor, farmer, florist, horticulturist, paymaster, clerk, steward, financier, board of managers, lobbyist, etc. etc., and practising physician. It is simply preposterous, and yet it is daily attempted to the detriment of all concerned.

As matters are now conducted in many of the asylums, it would certainly appear that the growth of cabbage and currants interests this official more than morbid growths within the encephalon; that the location of a turnip or potato patch interests him more than the localization of cerebral lesions; that the ripening of a new variety of strawberries interests him more than the origin and development of delusions; that it is rather his ambition to have the asylum an extensive and well-regulated insane boarding-house, than a hospital for the study, treatment, and cure of mental diseases.

It is urged, however, in reply, that he need not "fritter away his time" in the details of all departments, but simply direct their chiefs, and exercise a general supervision, while the assistant physicians are attending to the medical interests of the patients.

Theoretically, this seems reasonable, but practically, it results only in harm. Whenever the physician-in-chief assumes the functions that belong to an executive board, or undertakes the direction of all the affairs about an asylum, he becomes involved in endless details, his mind is engrossed in a multitude of matters, his attention is diverted from the patients, and he loses to a great extent medical interest in them.

This is about the result of such a course, argue as you will upon it. The *remedy* is simple.

Let the superintendent be a physician of high medical attainments, skilled in the practice of medicine, and then specially qualified in nervous and mental diseases. Let him devote his whole time to the care and treatment of his patients, just as the general practitioner does to his. Let him have absolutely nothing to do with the ordinary business and administrative affairs of the institution, but let these be entrusted to the proper officers, who shall report to the executive board. The minor details of management and organization, which I have not time to indicate, would then follow in their proper order.

2. Assistant Physicians.—When our medical colleges shall establish chairs of mental and nervous diseases, and didactic and clinical psychiatry is the rule and not the rare exception; or when the assistant physicians to our asylums are selected only from those who have taken a special course in insanity, then may we hope that these officers will enter upon their duties reasonably prepared.

Until such a desirable state of affairs is realized, it is but just to them, and particularly to the inmates, that they receive all possible assistance from superintendents upon diagnosis, clinical history, and treatment; and that they be not left unaided in the treatment of a disease most obscure to them. As a result of their inexperience, and this neglect by superintendents, they must, though studious and closely observant, pass two or three years in experimental treatment; and if they be not students, striving to scientifically interpret symptoms, and to intelligently treat their patients, though they pass twenty years in the specialty, their entire course will be but one of guess-work and empiricism.

It so happens that occasionally the superintendent has devoted himself so exclusively to the business affairs of the institution as I have pointed out, or else through indifference or unfitness has failed to qualify himself in the principles of medicine and the specialty of insanity, that he is not competent to scientifically instruct his assistants. In which event, if these also be indifferent physicians, we cry—Good Lord deliver the patients.

The most intimate professional intercourse should at all times exist between a superintendent and his medical assistants, and accompanied by them, he should visit one department daily, and thus see all the inmates every two days, instead of every three months, as we have heard of.

He could then institute such measures and treatment as are indicated, and follow them up by constant observation. The assistants should keep a daily clinical record of each case receiving medical treatment, as is done in our best general hospitals, and also note the conditions of interesting chronic or incurable patients, which record may be consulted on his daily visitations by the chief officer. A little more zeal among the resident staffs of asylums, a little more of the enthusiasm of the English and French alienists, would be a good thing.

I cannot too strenuously advise increased medical service in our asylums. At present, in most of them, one assistant physician has to attend the medical wants of from two hundred to three hundred patients, and sometimes has their exclusive medical care. Whether he can efficiently accomplish such a task, I leave you to judge.

There should be at least one such officer to one hundred patients in the State hospitals, where, it must not be forgotton, the great majority of inmates are incurable and need no special medical care. In other or private asylums, where many recent and curable cases are received, this ratio should be much increased.

3. Consulting Medical Staffs.—I have always been in favor of consulting staffs to asylums, because I have myself oftentimes felt the need of assistance from this source. I believe, if properly appointed and conducted, they would be of the greatest benefit to the patients, to the resident medical officers; and would indirectly promote the interests of hospitals by allaying much of that popular suspicion of neglect and cruelty to patients, since members of these consulting boards would be physicians to the families of many of the inmates.

A consulting staff should, I believe, consist of five physicians of acknowledged ability—two alienists, or experienced in mental and nervous diseases, one a surgeon, one a gynecologist, and one a general practitioner. And this board should not be a mere dress-parade one,[1] visiting the asylum at long and stated intervals, and subscribing to rosy annual reports. But it should be an active and effective one if the asylum officials will encourage it to be. One or both of the alienists should visit the institution at least once a week, examine all recent cases, and as many others as possible, and consult fully upon their nature and treatment with the resident officers. Other members of the staff need not pay regular visits, but should be called in whenever cases presented involving questions in their respective branches.

4. Asylum Therapeutics.—As many of the asylums are now conducted, it is not to be wondered at, that the strictly medical therapeutics of insanity is much neglected, and that a routine both in prescribing and dispensing prevails, which would simply amaze the active and wide-awake general practitioner.

In certain forms and stages of insanity, the administration of proper medicines may be attended by effects as pronounced and beneficial as in any other disease, while it is equally certain that pathological processes let alone or ignorantly attacked generally leave their victims beyond all help. It is the duty of asylum physicians to give this subject more attention and study.

5. Pathological Work.—The amount of this done in our asylums is very limited—indeed, is attempted in only a few. When we think of the vast quantity of valuable material for this study to be found in these institutions, it is a matter of profound regret that

[1] The Functions of a Consulting Staff to Lunatic Asylums. A paper read by E. C. Seguin, M.D., before the National Association for the Protection of the Insane and Prevention of Insanity, at its annual meeting held in New York, January 20, 1882.

so little of it is utilized. There is no reason why the work should not be undertaken even in a small way in all hospitals. But the failure to do so is a natural consequence of the imperfections of the system and the inexperience of superintendents in pathological investigation.

6. Gynecological Treatment.—It is often asked by practitioners why this treatment is not conducted in the female department of all insane hospitals. As I have never, myself, been able to get a satisfactory answer to this question, I can give none. But I can say that such reasons as are occasionally assigned are not sound, and do not become earnest and conscientious physicians.

I consider the neglect of this particular treatment in asylums most culpable, well-nigh criminal, in superintendents. I have seen many cases in which the history, as well as symptoms, pointed to disorders of the reproductive organs as causing or complicating the mental aberration, and yet no attention was paid to the matter nor treatment directed to the cause.

I am not one who believes that all cases of insanity in women have their origin in diseases of these organs or perversion of their functions; but I do know what I have stated, and am emphatic in declaring that the proper remedy ought to be applied.

I am well aware that there are some obstacles to this treatment as there are to other kinds of treatment, but they can be overcome if it is determined they must be.[1]

7. Overcrowding.—The extent to which this is sometimes carried is dreadful. When two, three, four, and even *five* insane persons are packed for the night in a room 8 × 13, poorly ventilated, it is time to reflect.

That homicides are not more frequent is a matter for sheer wonder. It is the duty of managers to see that this evil is prevented as far as possible by refusing admission beyond the capacity of their institutions.

Far better have fewer patients than rival asylums, or a decline in the receipts, than the suffering, sickness, increased mortality, and abominations incident to overcrowding. I am aware of the demand for more hospital accommodations, but this should *not* be satisfied at the expense of the comfort, health, and life of present inmates.

[1] Gynecology as related to Insanity in Women, by Alex. J. C. Skene, M.D., in Archives of Medicine, February, 1880.

8. Employment of Patients.—The evils of idleness are many among the inmates of asylums, and I know of nothing so trying to most of them as the ennui resulting from months and years of monotonous inaction.

Appropriate employment is often a most important factor in the cure of cases, is a means of contentment to the incurable, and may be a source of considerable revenue to the asylum.

Our more progressive institutions have provided suitable industry for their inmates, and find that nearly all may be occupied with most gratifying results.

9. Unjust Commitments.—Much has been said of late in the daily press about the incarceration of sane persons in asylums by interested relatives, and it would appear that legislation is rather active in some of the States with a view to suppressing this supposed wrong. I believe there is very little truth in these rumors, which, if thoroughly investigated, will generally be found to have emanated from the brains of unrestored ex-inmates. Such fraudulent procedure doubtless occurs, but it is extremely rare I believe.

Nevertheless, to protect the sane, and relieve popular apprehension, the laws should be most stringent in this matter, and the severest punishment visited upon those who illegally conspire to this end.

As a further check to such practice, and to prevent the prolonged confinement of a sane person, it should be required of the medical officers of hospitals that they render to some lunacy or other board, their opinion as to the sanity or insanity of all patients within one week after admission, this opinion to be based upon a careful examination into each case.

At present, in our own State, the entire responsibility rests upon the certifying physicians, who, if not dishonest, may be incompetent to pass upon cases of doubtful sanity.

Indeed, very little effort is made by asylum officials to discover whether the party be insane or not. It is assumed to be so merely on the strength of the customary certificate.

10. Prolonged Detentions.—It is often a difficult matter to decide when a patient is sufficiently restored to be discharged, but if daily seen and carefully studied, the proper time for release may be determined with some degree of accuracy. Owing to the failure of superintendents to give their personal and frequent attention to the inmates, I am satisfied that many restored persons are detained

unnecessarily long, and that others, through the importunings of relations, are discharged before they ought to be.

11. Restraint.—The subject of mechanical restraint in the care of the insane has been freely discussed, and the arguments pro and con would fill volumes. It was an evidence of the advance of civilization when the dungeons, shackles, and chains of a century or more ago, gave place to the asylums, cribs, and strait jackets of the present. And it is an evidence of continuing progress that these forms of restraint are fast yielding to the enlightened methods of management dictated by science and humanity.

There can be no doubt that restraint is too freely employed in many asylums. This has been pointed out by many writers,[1] and my own experience corroborates these statements. It is so easy to order the application of restraint apparatus to a refractory patient, if the officer have not the time or desire to devise simpler means of tranquillizing him; and finally this facility degenerates into the most absolute abuse of the system.

I am not sure but in some cases, some mild form of restraint might be advantageously employed; but since it is liable to be so badly abused, I would abolish it altogether. In this connection I quote and endorse a paragraph from the biennial report for 1881 and 1882 of the Alabama Insane Hospital, Dr. Bryce, Superintendent: "I believe it quite possible that this principle of non-restraint may be carried so far as to be injurious in individual cases. We have often refused to allow a patient to be restrained, when we knew a little judicious coercion would do him good. The great objection to the use of mechanical apparatus for coercing a refractory patient is its liability to be abused. It is easier, safer, and better on the whole, whatever may be the advantages in a few individual cases, to discard it entirely when it can be done."

Dr. J. C. Shaw, Superintendent of Kings County Insane Asylum, New York, and the pioneer in the adoption of the non-restraint system in our country, writes me that the fourth year of its employment proves the system both practicable and valuable, and that he has had no reason to modify his views in regard to it.[2]

[1] Observations on the Insane Asylums of California, by W. R. Birdsall, M.D., Archives of Medicine, June, 1880.

The Obstacles to the Abolition of Mechanical Restraint in our Insane Asylums, by Jno. S. Woodside, M.D., N. Y. Medical Record, March 4, 1882, vol. 21, No. 9.

[2] See several articles and editorials on the subject in the Archives of Medicine for 1880, 1881, 1882, by J. C. Shaw, M.D.

Restraint is scarcely known in the asylums of England and Scotland, while seven of our own (so far as I am informed), have discarded its use.

Let the other seventy hospitals fall into line in this excellent reform movement.

12. Cruelties.—It has been alleged that cruelty is inflicted upon the inmates of asylums, and quite a protracted investigation into the matter in our own State has just closed. I deeply regret to say, that there is much truth in these reports, and that these patients are often the victims of the most abusive treatment at the hands of attendants. I do not charge that *all* attendants are thus guilty—by no means—nor that all patients suffer such treatment, but there is entirely too much of it, and I believe the one-tenth is never discovered even by asylum officials.

I speak advisedly, and have no disposition to be sensational. I am well acquainted with all the difficulties in dealing with a violent maniac; but am just as emphatic in declaring that he should not and need not be abused.

When a refractory patient refuses for days to take food or drink, or medicine, to dress or undress, etc., it may be necessary to compel submission; and in so doing force is required; but it is justifiable. It is not cruelty, but kindness, if done in a proper manner. If, however, under similar circumstances, or the varying ones that daily arise, such patient is buffeted, or kicked, or choked, or subjected to unnecessary and painful restraint, such treatment is *cruelty*, and that is what I refer to.

It is not necessary to enter into details. I have asserted that such abuse is often practised in these institutions, because I know that it is; and though investigating committees, and executive boards may be unable or indisposed to arrive at the truth; and though denials are stoutly made by officials and employés *while in office*, nevertheless, the facts remain as I have stated. I would not be understood as implying that the medical officers countenance these abuses; and that the guilty attendant, when found out, is allowed to remain. I should certainly dislike to think that such a state of things existed in any asylum in the land.

But I do mean to say, that through inattention of the chief medical officer, which I have already emphasized, sufficient vigilance is not exercised, the problems constantly arising are not judiciously solved, emergencies are not properly met—and that he becomes indirectly responsible for much of this maltreatment.

Need I say that any superintendent who permits the attendants

or supervisors to apply restraining apparatus, at their own pleasure, is guilty of shameful neglect, and encourages these cruelties? Is it not obvious how such a privilege will be abused, and how the unfeeling attendant may for the most trivial offence, or to promote his own comfort and ease, bind hand and foot nearly every patient? Can this evil be prevented?

Not entirely in this stage of the world. When all-forbearing and intelligent nurses can be procured, who appreciate the fact that the insane are *not responsible* and should not be *punished*, then may we expect cruelty to be quite unknown. But the golden age has not arrived. What then can be done?

1st. If the superintendent is one who thinks mechanical restraint or seclusion is called for, let it be applied only upon his order or that of one of the assistant physicians, and *in their presence.*

2d. Let there be increased medical service, so that constant supervision may be exercised.

3d. Let the services of the humane and faithful attendants—many of whom there are—be fully recognized by liberal compensation, and every effort be made to retain them.

4th. Let a detective system be adopted. It is in the absence of superior officers that abuse generally occurs, and to foil the heartless attendant here, a male and female detective in the guise of patient or nurse, should be engaged, wherever the insane are congregated. The guilty party could then be easily discovered, and if he has committed undue violence, he should be prosecuted for a misdemeanor, and punished to the full extent of the law. A mere discharge from service will not answer. A few examples of this kind would have a wholesome influence, and it is believed would reduce abuses to a minimum.

In conclusion, I desire to make a few remarks about the non-asylum insane, or those without hospital accommodation.

It is estimated that there were in the United States in 1880 about 90,000[1] insane persons, 50,000 of whom were not in asylums. The best provisions for this great class, is a question that is now engaging attention of some of our earnest alienists and philanthropists.

It does not appear, though, that it is either wise or economical to erect palatial asylums and store these unfortunates away in them

[1] See paper read before the National Association for the Protection of the Insane and Prevention of Insanity, at its annual meeting, held in New York City, January 20, 1882, by C. L. Dana, A.M., M.D., "The Asylum Superintendents on the Needs of the Insane."

for life; though this would be better than allowing numbers of them to languish in jails, almshouses, and other unsuitable places.

It should not be forgotten, at the same time, that a large proportion of these are, probably, at their own homes, where they receive more considerate care than they would in asylums, though not always appropriate treatment; and further that possibly four-fifths of them are incurable, and require no special medical treatment. Hence we need not concern ourselves unduly about this class.

The *vital, practical*, problem of the day, to all alienists and physicians is: "How may we reduce the supply to this increasing host of the asylum and non-asylum insane?"

(*a*) Prevention of insanity, and (*b*) its prompt cure when developed, comprehend the solution of this problem.

At the annual meeting of the National Association for the Protection of the Insane and Prevention of Insanity, held at Philadelphia, January, 1883, Dr. Joseph Parrish, in his paper, entitled, "How to Protect the Insane," said, among other good things: "We want the people to comprehend the fact, that, if they would escape insanity for themselves, they should be familiar with its causes and the manner of its approach, and therefore need a popular journal devoted to the subject of lunacy reform and the discussion of preventive measures."

That is the idea—popular journals, popular manuals, and if necessary, popular lectures, so that the people may be acquainted with the laws of physical and mental hygiene, and impressed with the importance of observing them. In this way insanity could be greatly diminished, for it is in many instances a preventable disease.

The prompt and proper treatment of this malady in its initial stage is the other factor in the solution of this problem of lunacy *reduction*, and is a matter that involves the responsibility of every physician.

It is well known that nearly all cases of insanity are first brought to the attention of the family physician, and it is therefore his duty[1] to have acquired such knowledge of the disease as will enable him to intelligently treat it, just as he does any other disease. The idea which so generally prevails, that because a person is insane he must be sent to an asylum, is a most mistaken one.

Insanity in its forming stage may often be easily cured, and there

[1] The Duty of Medical Colleges and the General Practitioner toward Mental Diseases, by Charles K. Mills, M.D., in the American Psychological Journal, vol. i. p. 73.

is no necessity for inflicting the patient and family with the mortification and grief of asylum confinement.

These cases should be treated at home, where they can enjoy the quiet, seclusion, and other advantages not to be found in hospitals. I have previously advocated this plan of treatment,[1] and still urge a faithful trial of it. It is often attended with the most happy results. Where it is impossible, from the nature of the case or the want of facilities, the patient should be promptly placed in a private hospital or retreat, where a few weeks' residence and treatment may suffice to effect a cure. If these establishments are not accessible, recourse may be had to an asylum as the last resort.

[1] The Home Treatment of the Insane, Pittsburg Medical Journal, March and April, 1882.

THE HAIR; ITS USE AND ITS CARE.

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The object of this paper is to briefly describe the hair and its important functions, and to suggest the proper modes of preserving it in a heathy state. I know full well that much has been written upon this useful part of the human economy, but the constant increase of bald heads and beardless faces, notwithstanding all the modern advancement in the application of preventive remedies, prompts me to point out the many ways of retaining, without medication, the hair, which is so important a defence, ornamentation, and adornment to the human body.

Neglecting the hair, and the many fashionable methods of arranging it at this time, called forth the prevailing use of false braids, plaits, frizzes, bangs, wigs, painted eyebrows, and false lashes, in place of a dense head of natural hair, which was considered in the time of the ancient Greeks and Romans as symbolical of vigor and strength. It was not alone at that period so considered, but in fact from the most remote period, by all tribes and nations, the greatest deference and respect has been paid to the hair, and a bald head was looked upon as a reproach and disgrace. Thus the ancient Hebrew referred to shaving as denoting affliction and shame; the Arabs also speak of a bald head as a degradation, and in concluding their oath always add: "If I have done it, then may the Lord turn my locks into a bald head." The Greeks, also, who possessed the most refined taste for all that is beautiful, considered the hair as one of the finest and best gifts of nature to man. The ancient Briton, likewise, who was noted for the length and beauty of his hair, devoted much care and attention to this personal ornament, of which he was very proud. It will therefore be seen, from what has been briefly stated, that the human hair received in ancient times marked attention. It is no less important at the present period, either for its usefulness or adornment, and if properly attended to will be retained, as Tacitus states the ancient Germans preserved their

hair, "to advanced age." It will be necessary, however, before calling attention to the care which this most beautiful gift of nature requires, to first refer to its formation, its distribution, development, and use, after which it can easily be seen how essential it is to exercise the utmost care and attention in order to preserve it in a healthy state.

THE HAIR.—The hairs are nothing more than modified epithelial tissue; the portion that projects beyond the surface of the skin is known as the shaft, the part beneath the root, and the expanded extremity within the skin, which rests upon the papillæ of the follicle, the hair bulb, from which the hair obtains its nutrition. The hair consists usually of three different portions, corresponding to the layers of the skin: the cuticle, which completely invests the hair; the real substance of the hair, the cortical portion, in which the pigment is deposited, and which gives the various colors to the hair; and within, the medullary substance or pith, which is absent in some of the fine and delicate hairs. The hairs thus formed are inclosed in sacs, with which the oil-tubes are in many instances connected, and then traverse the skin like the perspiratory tubes, often as far as the subcutaneous fat. In shape the hairs are oval in the larger, and cylindrical in the smaller, excepting at their terminal end, which is pointed when permitted to attain their natural growth, which varies from two to six years. Hair varies in thickness according to the sex, age, color, and condition of health, the average thickness being about one-four-hundredth of an inch, being coarser in women, except when frequently cut in men, which adds to its strength and coarseness. Age also exerts a marked influence on its thickness: thus, in children, the hair is much finer than in the adult, and becomes coarser with advancing years. Color, likewise, has a decided effect on the thickness of hair; flaxen, or light hair, which can be observed in northern regions, is naturally the finest, while black hair, seen in southern climates, is generally the coarsest. In addition, different diseases, particularly congenital, alter very much the diameter of the hairs. Its length, when left to its natural growth, varies in each person, and differs in the same, according to the condition of the hair-sac and bulb and the portion of the body in which it is developed. Wilson has calculated that in women it varies between twenty inches and a yard; while Withof has shown that the beard grows about one line and a half in a week, or six and one-half inches during a year. The hair of the head grows with about the same rapidity, becoming augmented in strength and bulk when cut, especially in youth, and decreasing by cutting

as age advances. Hair not only increases faster in length in youth than in advancing age, but it also grows, according to the views of Berthold and others, more by day than by night, more in summer than in other seasons. The short account that I have here given of the growth of hair would be imperfect were I to pass by the popular error of the growth and development of hair after death. Innumerable instances are on record where it is stated the hair and even the nails after death have become much longer. Physicians, students, and laymen have again and again recounted to me wonderful cases of extraordinary growth of hair that they have personally seen upon the opening of graves many years after burial. This popular delusion is due to the contraction of the skin and deep tissues after death, by which the hairs and nails, that are so deeply imbedded in the skin, are pushed out. The cessation of life stops all vital action of nutrition at the hair-bulb, and growth cannot, after this event, take place. Hairs attaining a certain length, the natural growth, are thrown off, just as animals shed their coats, to be again replaced by young hairs from the same follicle. The cast-off hair not only presents the pointed appearance upon its one extremity, already spoken of, but upon the lower end of the shaft is a small knotty swelling, known as the hair termination, and not the root, as it is commonly called. The hair-bulb, the root, the germ, of the cast-off hair, remain to again reproduce young hair.

Hair covers every part of the skin, excepting the vermilion border of the lips, the palms of the hands, and the soles of the feet, the dorsal side of the last joints of the fingers and toes, and several other small spots. It is distributed over the body in the normal condition, after emerging from the tubes in an oblique manner (in the same direction in which the tubes are developed), in the form of long hairs to the scalp and beard, short hairs in the eyebrows and lashes, and fine delicate hairs over the general surface of the body. They have a peculiar set appearance over every portion of the body, according to certain fixed laws. In some the hairs only appear above the level of the skin, while in other instances, not being visible to the eye, an abnormal growth, development, and distribution, is not uncommon in both sexes, the hair often appearing in its natural state in those regions usually but sparsely or poorly developed, as, for instance, the appearance of a beard on the face of women and children, long hairs over the ears, nose, face, and at times the general surface of the body. The quantity of the hair will vary according to the number of follicles, the age, and the health of the person Wilson has shown the average number of hairs on the square inch of the scalp to be one thousand, and the

whole for the head to be one hundred and twenty thousand; light colored hairs, particularly flaxen, being, however, more numerous. Hair possesses the property of assuming an electrical state, and is usually very elastic in healthy persons, being capable of sustaining great weight without breaking. It absorbs and gives off water, and readily takes up oily substances. Chemically it is a compound of animal matter, fat, manganese, and iron. It retains its physical characteristics long after every other part of the body has been decomposed, and many instances are on record where, after a lapse of many hundred years, human hair has been detected upon old dried parchment by the aid of the microscope.

Its Use.—Among the purposes of the hair is that of adorning and beautifying the person. The hair is a poor conductor of heat, and is, therefore, a valuable agent in preserving and equalizing the temperature of the body. It acts as an important means of defence against all forms of external irritation to the body, as the effects of heat and cold, the action of dust, insects, etc. Thus, the hair is worn in tropical climates as a defence against the rays of the sun; in the frigid zone, and even in our country, for the warmth that it gives to the parts which it covers. Again, the eyebrows, lashes, moustache, beard, and the hairs at the apertures of the nostrils and ear-tubes, defend those centres and organs against the entrance of insects and dirt. The purposes which the hair fulfils to these parts are invaluable to travellers and workmen engaged in many occupations in which the atmosphere becomes filled with particles of dirt, and which, if inhaled in these cavities, are often productive of much mischief by setting up inflammation of the organs themselves; for instance, miners, especially those having neither moustache nor beard, fall a ready victim to inflammatory affections of the lungs, as a result of the inhalation of the coal-dust. The moustache and beard are also the best natural respirators, and not only protect and equalize the temperature of the parts, but are likewise a valuable assistance in overcoming, during cold weather, the tendency that some persons possess of having sore throat, acute catarrh, and the various inflammatory affections of the lungs. The great value and important bearing which the beard has upon the general health, has recently been illustrated in the State Prison at Concord, Mass., in which the warden issued an order giving the convicts permission either to be shaved or to wear a full beard. The prisoners, as a rule, have gladly accepted their release from the razor, and, as a consequence, an extraordinary change has come over their physical appearance. The warden says that the convicts need beards to

protect their throats while passing through the prison yard to and from the workshops during the winter.

Its Care.—The hair, that I have shown to fulfil such important functions in the adornment and health of the body, requires both constitutional and local care to keep it in its normal healthy state. When I say constitutional care, I mean that the various organs of the body that assist in nourishing and sustaining the hair-forming apparatus should, by judicious diet, exercise, and attention to the nervous system, be kept healthy and sound in order that they in turn may assist in preserving the hair in a vigorous condition. In the first place, that essential material, food, which is necessary to supply the waste and repair of all animal life, should be selected, given, or used according to good judgment and experience. Thus, mothers should feed their infants at regular intervals, according to their age, and not permit them to constantly pull on the breast, or the bottle, until the little stomach becomes gorged with food, and some alimentary disorder supervenes, often setting up a rash, and interfering with the growth and development of the hair. It is likewise important, in case the babe must be artifically fed, to select good nutritious food as near as possible like the mother's, cow's milk properly prepared being the only recognized substitute; for the various lauded infants' foods often set up gastric and intestinal derangement, which causes the same injurious effects in the skin and its appendages. Care and discretion should likewise be used by parents and nurses, after the infant has developed into childhood, to give simple, substantial, and varied food at regular periods of the day, and not in such quantities as to overload the stomach. Children need active nutrition to develop them into robust and healthy men and women; and it is from neglecting these important laws of health, and from allowing improper food, such as many of the condiments, beverages, ices, sweetmeats, and pastries, that scaldhead, ringworm, and scrofula so often result, and leave their stamp in the poor development of the hair. With the advent of youth and the advance of years, food should be selected and partaken of according to the judgment and experience of its acceptable and wholesome action on the consumer. The meals should also be taken at regular intervals. At least four hours should be left between them, for the act of digestion and the proper rest of the stomach. It is, on the contrary, when the voice of nature has been stifled, when judgment and experience have been set aside, to tickle the desire and please the palate, which is too fre-

quently resorted to, and injudicious and unwholesome food is partaken of, that mischief follows. When the stomach is teased and fretted with overloading, and the food gulped down without being masticated, gastric and intestinal derangements supervene, which are some of the most prolific sources of the early decay and fall of the hair.

The nervous system, which controls the circulation, secretion, and nutrition, frequently, by being impaired, plays a prominent part in the production of baldness. Thus it has been demonstrated by modern investigation, that defective action of the nerves of nutrition is often the cause of thinning and loss of the hair. The nutritive action of a part is known to suddenly fail, the hair-forming apparatus ceases to act, the skin changes from a peculiar healthy hue to a white and shining appearance, and loses at the same time its sensibility, the hairs drop out until very few remain, and the part is entirely bald. Overtaxing of the physical powers, excessive brain-work, the exacting demands made by parents and teachers upon children's mental faculties, loss of sleep, incessant cares, anxiety, grief, excitement, the sudden depression and exaltation of spirits, irregular and hastily bolted meals, the lack of rest, recreation, and the abuse of tobacco, spirits, tea, coffee, drugs of all forms, continuous sexual indulgences, stimulation of the sexual organs, particularly from long courtships, lewd talk, plays and books, and onanism in girls and boys, are fruitful sources of this defective action of the nerves of nutrition, and consequent general thinning and loss of the hair. It may seem impossible at all times to avoid many of these fruitful causes of nerve enervation, yet practice and habit, combined with a strong will, will enable every one to bear up with strength and resignation, particularly under many of the mental disturbances referred to, and thus avoid exciting and injuring the nerves that preside over the hair-forming apparatus.

The hair, particularly of the head, should also receive marked local attention. In reference to the use of coverings for it, I know of no better rules than those which I laid down in my chapter on clothing in "Household Practice of Medicine" (vol. i. page 218, Wm. Wood & Co., N. Y.), in which I state that the head is the only part of the body so protected by nature as to need no artificial covering. The hair is similar in general structure to the wool and fur of the lower animals, and constitutes in healthy growth an excellent non-conductor. It is by unnecessarily covering our heads that we bring about a variety of scalp affections, the ultimate result of which is to cause loss of hair. If the head received proper care,

many cases of general thinning and premature baldness might be prevented. The use of hats and bonnets should as much as possible be avoided; these, if worn too constantly, will cause retention of the secretions of the scalp, attended with itching, and the consequent scratching may excite disease.

The stiff hats so extensively worn by men produce more or less injury. Premature baldness most frequently first attacks that part of the head where pressure is made by the hat. It is, indeed, a pity that custom has so rigidly decreed that men and women must not appear out of doors with heads uncovered. It would be far better for the hair if to be bareheaded were the rule, and wearing a hat the exception. Since we cannot change our social regulations in this respect, we should endeavor to render them as harmless as possible. The hat should not be worn except when absolutely necessary, children especially should be allowed to go bareheaded as much as possible.

Some slight improvement upon the construction of head-coverings has been attained in the last few years by the invention of ventilated hats. The ventilation, as is well known, consists usually of perforations in the top and sides of the hat. The effect is to cause free circulation of the air, and prevent the accumulation of a hot and sweat-laden atmosphere about the head. It is doubtful, however, if the method so often followed, of simply putting a few holes in the top of the hat, will have much effect. For summer wear good straw hats are made with large open spaces around the crown, securing complete access of air. In many cases, such as where persons are working in the sun, a broad-brimmed straw hat may be worn as a shade, but wherever possible we should protect ourselves from the sun's rays by some other means. When walking out of doors in hot weather, it would be best to discard the hat and carry a sunshade. With regard to that fashionable abomination, the silk hat, no words except of condemnation can be bestowed upon it. Uncomfortable, ungraceful, its continued popularity is one of those freaks of fashion which show us "with how little reason the world is governed." The forms of hats that are least injurious are, for winter, soft hats of light weight, having an open structure, or pierced with numerous holes; for summer, light straws, also of open structure. The precautions that have been given in regard to keeping winter clothing in warm rooms does not apply to head coverings; these may be kept in the cold, as the hair needs no warming. The habit of removing the hat when one comes indoors should be cultivated, and the custom should not be limited to those cases in which it is required by courtesy.

As regards the head-covering of women, the fashions have been for several years favorable to proper form. The bonnet and hat have become quite small, and cover but little of the head. This beneficial condition, however, is in part counterbalanced by the weight of false curls, switches, puffs, etc., by the aid of which women dress the head. These, by interfering with evaporation of the secretions, prevent proper regulation of the temperature of the scalp, and likewise lead to the retention of a certain amount of excrementitious matter, both of which things are a prolific source of rapid thinning and loss of hair in women. False hair has likewise sometimes been the means of introducing parasites, which give rise to obstinate affections of the scalp.

Cleanliness of the entire surface of the skin should next demand attention, and that should be done by water, the medium of ablution. It is a well-known physiological law, that it is necessary, in order to enable the skin to carry on its healthful action, to have washed off with water the constantly cast-off scales, which become mingled with the unctuous and saline products, together with particles of dirt which coat over the pores, and thus interfere with the development of the hair. Water for ablution can be of any temperature that may be acceptable and agreeable, according to the custom and condition of the bather's health. Many chemical substances can be combined with water to cleanse these effete productions from the skin, such as soap, soda, potash, bay-rum, and other substances. The addition of any of these chemical substances to water has no especial action in forwarding directly the growth of the hair, as is commonly supposed, but simply keeps the skin clean, and permits it and the appendages to perform their healthful action. The use of the first-named chemical substance, soap, is the most efficacious of all for cleanliness, health, and the avoidance of disease; soap combines better with water to render these unctuous products miscible, and readily removes them thoroughly from the skin. The best variety of soap to use is the pure white soap, which cannot be easily adulterated by coloring material, or disguised by some perfume or medicinal substance, as are the majority of the soaps used and recommended at the present day. Ablution with soap and water should be performed once or twice a week at least, particularly to the head and beard, in order to keep open the hair tubes, so that they may take in oxygen, give out carbon, carry on their nutrition, and maintain the hair in a fine polished and healthy condition. In using water to the scalp and beard, care should be taken not to use soap-water too frequently, as it often causes irritation of the glands and leads to the formation of scurf. It is equally important to avoid

using to the head the daily shower bath, which, by its sudden, rapid, and heavy fall, excites local irritation, and, as a result, loss of hair quickly follows. In case the health demands the shower bath, the hair should be protected by a bathing cap. The most acceptable time to wash the hair, to those not accustomed to doing it with their morning bath, is just before retiring, so that they may avoid going into the open air or getting into a draught and taking cold. After washing, the hair should be briskly rubbed with rough towels, the Turkish towel heated being particularly serviceable. Those who are delicate, or sick, and fear taking cold, or being chilled from the wet or damp hair, should have rubbed into the scalp a little bay-rum, alcohol, or oil, a short time after the parts have been well chafed with towels. The oil is particularly serviceable at this period, as it is better absorbed, and at the same time overcomes any dryness of the skin which often follows washing.

It might be well to add in this connection that I have frequently been consulted by those taking salt-water baths, as to the care of the hair during and after the bath. If the bather is in good health, if the hair is normal, the bather can go into the surf, and remain at least fifteen minutes, and on coming out should rub it thoroughly with dry towels. Women should permit the hair to remain loose until thoroughly dry; after which it can be advantageously dressed. It is, however, often injurious to both men and women to go into the surf, having some wasting of the hair, without properly protecting it; the sea-water has not, as is often thought, a tonic action on the scalp; on the contrary, it often excites irritation and general thinning. Again, it is most decidedly injurious to the hair for persons to remain in the surf one or two hours, the hair wet, and the head unprotected from the rays of the sun. This latter class of bathers, and those who hurriedly dress the hair wet, which soon becomes mouldy, and emits a disagreeable odor, are frequent sufferers from its general loss and thinning.

An agreeable and efficient adjunct after ablution, which I have already referred to, is oil. Oil has not only a cleansing action upon the scalp, but it also overcomes any rough or uneven state of the hair, and gives it a soft and glossy appearance. The oil of ergot is particularly serviceable in fulfilling these indications, and at the same time, by its soothing and slightly astringent action upon the glands, will arrest the formation of scurf. The efficacious action of oil of ergot upon the scalp and other hairy parts I fully described for the first time before the Pennsylvania State Medical Society in 1880. (See *Transactions of the Medical Society of the State of Pennsylvania*, vol. xiii. pages 85, 86, and 87.) Oil also,

sparingly applied when nature will not furnish sufficient for the hair, assists in nourishing the parts, arrests splitting, and a ragged condition of its ends, and overcomes any hygroscopic state that may exist. In using oil the animal and vegetable oils should always be preferred, as mineral oils, especially the petroleum products, have very poor affinity for animal tissues in their feeble penetrating and absorbing action, which I demonstrated in a paper, On the Oleates and Oleo-Palmitates, read at the meeting of the Pennsylvania State Medical Society, in May, 1882. (See *Transactions of the Medical Society of the State of Pennsylvania*, vol. xv.) I might also add in referring to the petroleum products, that it is a very great delusion that either petroleum oil or any of the petroleum preparations, such as carboline and others that are so largely advertised and sold, have any action in promoting the growth of the hair. These preparations cannot have other than an injurious effect on the scalp or other hairy parts from their composition, and no benefit from their use can follow, owing to their poor power of penetration. Pomatum is largely used by many in place of oil, as it remains on the surface, gives a full appearance to the hair, thus sometimes hiding its thinness. It will do neither harm nor special good if it contains pure grease, wax, harmless perfume, and coloring matter, but it is often highly adulterated; or the fat, in decomposing, sets up irritation in the parts to which it is applied. I therefore always advise against its use, by reason of this latter objection, which by perfume can be so thoroughly disguised as not to be detected by the most experienced.

The comb and brush are also agents of the toilet, by which the hair is kept clean, vigorous, and healthy. The comb should be of flexible gum, with large, broad, blunt, round, and coarse teeth, having plenty of elasticity. It should be used to remove from the hair any scurf or dirt that may have become entangled in it, to separate and prevent it from becoming matted and twisted together. The fine-tooth comb, made with the teeth much closer together, can be used in place of the regular toilet comb just named, when the hair is filled with very fine particles of scurf, dirt, or when parasites and their eggs infest it. It should, however, always be borne in mind that combs are only for the hair, and not for the scalp or the skin, which is too often torn and dug up by carelessly and roughly pulling these valuable and important articles of toilet through the skin as well as the hair. Many local irritations of the scalp which injure eventually the hair, particularly in children, are in this way set up, never to be again remedied, by the constant and injudicious use of combs. The brush, with moderately stiff whale-

bone bristles, may be passed gently over the hair several times during the day, to brush out the dust and the dandruff, and to keep the hair smooth, soft, and clean; rough and hard brushing the hair with brushes having very stiff bristles in them, especially the metal or wire brushes, is of no service, but often irritates the parts and causes the hair to fall out. I should also add in this connection that the highly lauded electric brushes do not in any manner contain electricity; a loadstone is usually concealed in the back of the brush which attracts the needle of the compass which accompanies it. If they did contain electricity, as their makers claim, they would be just as injurious as they are at the present when brushed over any part of the body covered with hair. It is particularly objectionable to use either the comb or the brush to remove dandruff from the scalp, as the effort to remove it in either of these mechanical ways often aggravates the disease.

And now the question arises, Should the hair be periodically cut? It may be that cutting and shaving may for the time increase the action of the growth, but it has no permanent effect, either upon the hair bulb or the hair sac, and will not in any way add to the life of the hair. On the contrary, cutting and shaving will cause the hair to grow longer for the time being, but in the end will inevitably shorten its term of life, by exhausting the nutritive action of the hair-forming apparatus. When the hair is frequently cut it will generally become coarser, often losing the beautiful gloss of the fine and delicate hairs; the pigment will likewise change—brown, for instance, becoming chestnut, and black changing to a dark-brown. In addition, the ends of very many will be split and ragged, presenting a brush-like appearance. I, therefore, usually advise the cutting of the hair only when it grows to such a length as to interfere with comfort, pleasure, and adornment; or when in its primary growth it is thin and sparsely distributed. If the hair appears stunted in its growth upon portions of the scalp or beard, or gray hair crops up here and there, the method of clipping off the ends of the short hair, of plucking out the ragged, withered, and gray, will allow it to grow stronger, longer, and thicker.

Mothers, in rearing their children, should not cut their hair at certain periods of the year (*e. g.*, the superstitious time of full moon), in order to increase its length and luxuriance as they bloom into womanhood and manhood. The habit of cutting the hair of children brings evil in place of good, and is also condemned by that distinguished worker in this department, Prof. Kaposi, of Vienna, who states that it is well known that the hair of women who possess luxuriant locks from the time of girlhood never again attains its

original length after having once been cut. Pincus has made the same observation by frequent experiment, and he adds that there is a general opinion that frequent cutting the hair increases its length, but the effect is different from that generally supposed. Thus upon one occasion he states that he cut off circles of hair an inch in diameter on the heads of healthy men, and from week to week compared the intensity of growth of the shorn place with the rest of the hair. The result was surprising to this close and careful observer, as he found in some cases the numbers were equal, but generally the growth became slower after cutting, and he has never observed an increase in rapidity. I might also add that I believe that many beardless faces and bald heads in middle and advancing age are often due to constant cutting and shaving in early life. The young girls and boys seen daily upon our streets with their closely-cropped heads, and the young men with their clean-shaven faces, are year by year, by this fashion, having their hair-forming apparatus overstrained.

The hair when wanted will grow and often be long and apparently luxuriant; the diameter, however, has become altered; it is coarser, the initial gloss is absent, and its premature death and loss after some years will furnish many of the bald heads of the future for the use of the chignon and the wig. In dressing the hair, the modern practice of curling and crimping should not be resorted to, as it renders the hair brittle and lustreless, and thinning will, in course of time, necessarily follow. Bandoline, and all varieties of gum solutions, used as articles of toilet to properly place the hair in this or that fashion, is very injurious. The former preparation I have frequently seen turn a dark hair red. Sharp hair-pins, long-pointed metal ornaments, and combs cut not only the hair, but often irritate the scalp. The use, by women in dressing the hair, of chignons and false plaits, curls and frizzes pull upon the natural hair, and are liable to set up congestion, cause nervous headaches and perspiration, collect dust, and so do much harm. The use, likewise, of dusting powders, especially the diamond and gold, not only closes up the hair-ducts and arrests the growth, but likewise cuts and renders brittle, dull, and lustreless all the hair upon the head. All these baneful toilet agents should be avoided, the hair should be worn by women as loose as possible, especially at night, when the braids should be undone, a comb run through, and the hair tied loosely with a ribbon, and put up in a loose net or a night-cap of some light porous material; the skin in this manner receives full aeration, and the hair-forming apparatus acquires renewed vigor. It is also beneficial to those who must wear false hair to remove it as often

as possible, and wear, when possible, some light porous covering for the head.

Further, the use of spirits, castor oil, and the various mixtures extolled and advertised as the best tonics, restoratives, vegetable hair dyes, or depilatories will overstimulate and retard nutrition, and shorten the existence of the hair, and inflame and congest the skin.

These so-called tonics that are used on the supposition that a weakness exists are wrongly applied. It is a local irritation, atrophy, or more general derangement of the system, and not a weakness, for which the remedy should be used to cure, or to stop the progressive action of the disease. Many of my patients, whom I have treated for hair affections, used spirits, tonics, restoratives, or hair dyes, and depilatories, which had their evil, and at times their permanent injurious effect upon the hair-producing organs and the skin, before presenting themselves for treatment. Thus I have again and again seen the hair grow thin, the health become disturbed, and persons at times poisoned from using hair dyes. It is well known that the majority of dyes for the hair are largely composed of lead salts, which was clearly demonstrated by Prof. Chandler, of New York, who analyzed some sixteen of those now offered in the market, and who reported in the *American Journal of Pharmacy* for 1870 that one contained ammoniated silver nitrate, and all the rest contained lead. If those who, becoming gray with advancing years, do not wish to retain that venerable and noble aspect with which nature clothes them, and color their hair to appear young, preparations should be selected and applied with such care as not to affect the general health. Probably the best hair dye that can be selected for this purpose is pyrogallic acid or walnut juice, the hair being first washed with an alkaline solution, to get rid of the grease and the dye afterward applied. Another comparatively good and safe hair dye is the nitrate of silver; the hair should, however, be properly prepared by an experienced and skilled person, after which the silver solution should be used with great care and precision by the operator to avoid staining and disfiguring the skin. In case the latter mishap should occur the parts should be washed with a solution of potassium iodide, or sodium sulphide. The time consumed in using the dye will depend upon the thickness of the hair to which it is to be applied. Groups of hair should be carefully taken up on a comb, and rubbed with a long fine toothbrush, from the surface of the skin towards the end of the hair, and after the operation they should be fanned until dry. The judicious use of the hair dyes just mentioned will give the hair above the surface of the

skin a brownish-black appearance; the intensity of the color can be deepened by increasing the strength of the solution used. The portion of the hair beneath the surface of the skin will continue to grow, and as it has not been colored by the dyeing process, the operation will have to again be repeated at the end of a week or ten days' time. Hair dyeing for premature grayness should, if possible, be avoided; the diseased condition may be arrested by appropriate remedies, and the use of the dye, as has already been stated, will have an ultimate injurious effect. Hair dyeing is not alone confined to those having gray hair, but is at present largely practised by women to turn their despised dark and brown hair to the fashionable and greatly admired golden locks of the present day. In very many instances they repair to a hair dresser, who uses an arsenical solution with sulphide of ammonium, with which to strike this golden hue, a method which is not only injurious but even very dangerous, from the arsenic used in the application. If women will persist in thwarting nature, and impair their own true foliage, which will gradually under this bleaching grow thin, then the least harmless remedy that can be used is the peroxide of hydrogen, which brings out the much coveted golden color.

Perhaps one of the most pernicious compounds used for the hair at the present day is that which is sold in the shops as a depilatory. It is usually a mixture of quick-lime and arsenic, and is wrongly used and recommended at this time by many physicians to remove hairy moles, and an excessive growth of hair upon women's faces. Its application excites inflammation of the skin, and while it removes the hair from the surface for the time, it often leaves a scar, or the parts rough, congested, and deformed; in the mean time the hair will grow after a short period stronger, coarser, and changed in color, which will even more disfigure the person's countenance. With the present scientific knowledge of the application of electrolysis, hairs can be removed from the face of women or children, or in any improper situation, in the most harmless manner, without using such obnoxious and injurious compounds as depilatories. Thus, I have removed with electrolysis, properly and carefully applied, from the faces of women, many thousands of hairs with ease and comfort to them during the operation. Hairy moles, the moustache, and beard, which at times afflict the fairer sex, I have also in many instances completely eradicated, and have discharged my patients with a fair and smooth skin, without any vestige of a scar or blemish.

In conclusion, let me add, that if the hair becomes altered in texture, or falls out gradually or suddenly, or changes in color, a

disease of the hair, either local or general, has set in, and the hair, and perhaps the constitution, now needs, as in any other disease, the constant care of the physician. A general remedy for this or that hair disease, that may develop, will not answer, as hair diseases, like other affections, have no one remedy which will overcome wasting, thinning, or loss of color. Patients reasoning upon this belief, frequently apply to me for a remedy to restore their hair to its full vigor, or give it back its color; I always reply that I have no such remedy. The general health, as well as the scalp and hair, must be examined carefully, particularly the latter, with a lens and microscope, all changes must be watched, and the treatment varied from time to time, according to the indications. No one remedy can, therefore, under any circumstances, suit, as the remedy used to day may be changed at the next or succeeding visit. No remedy for the hair will be necessary if the advice be followed which I have just given, and which is the result of some seven years of labor and experience. The proper consideration and putting into practice of these suggestions will most certainly secure to the rising generation fewer bald heads and more permanent hair than we possess at the present day.

THE MEDICAL SERVICE OF INSANE HOSPITALS.

By CHARLES K. MILLS, M.D.,

PROFESSOR OF DISEASES OF THE MIND AND NERVOUS SYSTEM IN THE PHILADELPHIA POLYCLINIC COLLEGE FOR GRADUATES IN MEDICINE.

How to render most efficient the medical service of insane hospitals is a problem of importance to the community, as well as one of interest to alienists and the profession at large.

Although I have never been a resident physician in any insane hospital or asylum, I have for several years been connected with institutions of this kind as consultant; and, having tried to make this connection not simply ornamental, have had opportunities of practical observation and investigation, which may give the right to claim some experience.

In the first place, the number of physicians constituting the resident staffs of our insane hospitals is entirely too small. Let me take for illustration the State Hospital for the Insane for the Southeastern District of Pennsylvania, located at Norristown. From the last report, I learn that the department for men contained September 30, 1882, 494 patients; that for women, 457 patients—a total of 951 patients, to whom only four physicians are called to minister medically

The individual examination of every patient should in some way be provided for.

The new law framed by Gov. Hoyt's Commission, and recently enacted, provides that, in all buildings or establishments where an insane person is detained, there shall be kept an admission book, a discharge book, a case book, in which there shall be regularly entered all the facts bearing on each patient and his case, and a medical journal, in which there shall be at least once a week a statement written of all matters which are of special importance bearing on the treatment and condition of the patients.

It also provides that, within twenty-four hours after any person is received into any house for detention as an insane person, the person in charge there shall enter, or have entered, in a book kept

for that purpose, all the facts stated in the certificate or documents required to be exhibited at the time of receiving the patient, and shall file the originals and preserve them. The regular medical attendant of the house shall, within twenty-four hours after the reception of any patient, examine such patient, and reduce to writing the results of such examination, and enter the same upon a book to be kept for that purpose, together with the opinion formed from such examination, and from the documents received with the patient.

These provisions are admirable, but I hold that it is impossible to carry them out, either in letter or in spirit, as the medical service of our hospitals for the insane is at present organized.

The examinations, entries, and records can only be made in the most perfunctory manner, if at all. Spend half a day only at one of our large State institutions, and see the calls that are made upon the time and attention of the Superintendent, and his single assistant, by mere routine and accidental or transitory duties, and the impossibility of carrying out such provisions becomes evident. Trustees, legislators, physicians, and philanthropists, from near and far, the friends of patients (and their foes too, sometimes)—are to be received, entertained, chaperoned, and, at the least, treated with politeness and respect. To the innumerable calls from within by patient and attendant, I need scarcely refer.

Do not abolish these provisions, which are not impracticable, but let steps be taken to provide the means to carry them out thoroughly, and the first of these steps must be to increase the medical staff.

In a hospital containing as many patients as the one located here, there should be at least three paid assistants, instead of one, in each department; a good superintendent could find more than enough for such assistants to do.

I know that this is an old story, but it must be iterated and reiterated, until a great change for the better is accomplished.

If, for economy or other reasons, it is not possible to increase at once the staff of paid assistants to the extent necessary to thoroughly conserve and advance the best medical interests of the hospitals, the plan of appointing a number of unpaid resident physicians or internes might, I think, be tried with advantage. While such positions might not be considered as desirable by young physicians as similar appointments in general hospitals, yet I am satisfied that little or no difficulty would be experienced in securing the services for one year of recent graduates. These appointments would have a favorable reciprocative action upon the hospitals, in that superintendents, paid assistants, and internes would be stimu-

lated to greater exertion in order to enlarge experience, a consummation which would redound to the advantage of the patient.

The fact may be overlooked, that in a hospital containing from 500 to 1000 insane patients, not only are the opportunities for studying psychiatry inestimable, but the physicians in charge have also the opportunity of investigating and treating in the course of a year many forms of disease—medical, surgical, gynecological and special.

To illustrate this, it is but necessary to glance in the report of the Department for Women of the Norristown Hospital, at Table XXXV., which gives the record of the general medical and surgical work done during the year. I find 206 medical and over 50 surgical diseases treated; 53 teeth extracted; 440 vaccinations; 100 examined and 42 treated for uterine and ovarian disease.

It will be seen that no mean opportunities are offered to the ambitious recent graduate to obtain general medical knowledge, as well as a practical acquaintanceship with psychiatry, by a residence of one year in a hospital for the insane.

Every large hospital for the insane should be provided with a board of competent and conscientious consulting physicians, a board which should have an existence in more than name. When the Norristown State Hospital was fairly under way, the Board of Trustees, at their annual meeting, October 1, 1880, in accordance with a provision of one of their By-laws, appointed a staff of Visiting or Consulting Physicians, of which I had the honor to be one. Eleven physicians were named, and in addition to these "the physicians appointed for the different almshouses of the counties in the district." This was a good step in conception, but not executed in a practical way. No steps were taken by the trustees to organize and assign duty to the staff thus created. It would, I think, have been better to have determined upon a certain limited number of physicians, probably two specialists in neurology and psychiatry, one good physician, one surgeon and gynæcologist, and one or two specialists in ophthalmology, etc.

My view is that the consulting board of our insane hospitals should be selected with great care from men who will agree to perform the duties of the positions which they accept, and that they should be held accountable by the trustees.

No clashing between the consultants and the resident medical staffs of insane hospitals need occur. Supreme power of direction in medical matters should not, as in some general hospitals, be lodged in the hands of a visiting board. Some have thought that hospitals for the insane might be run nearly as general hospitals

are run, with a visiting staff and internes, but this I am convinced from observation is a mistake. An institution for mental diseases requires the constant presence of a physician of long training and large experience; but consultants can be of great service to him and his assistants.

I believe with Prof. E. C. Seguin,[1] "that, with certain changes in details, the duties of the consulting medical staff might be made somewhat to resemble the duties of a consulting physician in private practice."

Every large hospital for the insane should be provided with a competent pathologist and microscopist. Preferably these officers should be residents of the hospital; but when this could not be at once accomplished, and particularly when the hospitals are situated near large cities, like New York and Philadelphia, the services of non-resident pathologists and microscopists should be had—persons who could be summoned by telegraph, or to whom specimens could be referred for examination and report.

Hospitals for the insane should be thoroughly equipped with instruments of precision for diagnosis and treatment, with ophthalmoscopes, with hydrotherapeutic, gymnastic, and electrical apparatus, with instruments for uterine, nasal, and other examinations, etc. Let the trustees take the initiative, supply the instruments, and hold the staff to accountability for their use.

Let me, in conclusion, call attention to two of the measures suggested by the commission appointed by Governor Hoyt, in May, 1882, to examine into the present system for the care of the insane in the State, measures which I believe will do very much to improve the efficacy of the medical service of hospitals for the insane. One of the proposals, now enacted as a law, is, that a State Committee on Lunacy be appointed, under the oversight of the Board of Charities, and in part composed of its present members—said committee to devote itself particularly to the interests of the insane—is a measure highly to be commended, and one which, if properly carried out, will greatly enhance not only the medical, but also the other interests of the insane.

Another suggestion that would, I believe, if carried out, greatly increase the efficiency of our hospitals is, that convalescent wards be organized for patients whose mental rehabilitation is largely established. These might be in buildings, cottages perhaps, on the outskirts of the large grounds of the hospital, as remote as possible from the main building.

[1] Proceedings of the National Association for the Protection of the Insane and the Prevention of Insanity, held in New York, January 20, 1882.

SURGICAL EXPEDIENTS IN EMERGENCIES.

By R. J. LEVIS, M.D.,

SURGEON TO THE PENNSYLVANIA HOSPITAL, AND TO THE JEFFERSON COLLEGE HOSPITAL.

It is in the experience of every surgeon to be occasionally obliged, in the absence of ordinary means and appliances, to devise resources available at the moment. Such occasions bring the practical character of the surgeon to the test, and on his readiness for the emergency may depend the relief of suffering or the averting of a fatal termination. His reputation, too, may, at such times, stand in the balance of good or ill report, to be turned happily in his favor, or gravely against him.

The exigencies of active surgical practice have frequently obliged me to rely on hastily devised resources, and I trust that the record of some of them, which I recall, may possibly be of benefit to the profession, and a relief to human suffering.

The necessity for *evacuating an over-distended bladder* is liable to become immediately urgent on occasions when a catheter is not quickly obtainable. It is remarkable how often the condition is overlooked by practitioners until it becomes one of suffering and danger, demanding instant relief. The continued dribbling, that often occurs from an almost bursting bladder, may mislead or blind him to the grave danger. The absence of a catheter, on one such pressing occasion, led me to contrive a ready means of evacuating the urine. The recourse was to a piece of iron bell wire, bent double on itself, and the blunt doubled end passed readily through the urethral tract to the bladder. The distension of the urethra by the doubled wire allowed the urine to freely pass along between the wires.

A female catheter may be extemporized from a short piece of rye straw, the end of which is to be closely wrapped for a short distance with thread; or the end of the straw may have its sharpness removed by dipping into melted sealing-wax. The stem of the ordinary clay tobacco-pipe is also efficient for the purpose. Such crude substitutes, when oiled, are readily introduced.

The operation of venesection would probably be more frequently resorted to, when needed, if a proper lancet, in perfect order, were at hand, but the critical time for relief of an actively congested or inflamed lung or brain is sometimes allowed to pass for want of a ready and certain method of opening a vein. I once, on a pressing occasion, bled a patient at the bend of the elbow, with perfect ease and precision, with but a blunt-pointed and dull pocket-knife, by resorting to a simple, convenient expedient. Having put on the usual constricting bandage to distend the veins, I first transfixed the most prominent vein with a fine needle. Thus held securely it was very easy, with even the dull knife, to cut a valvular incision into the vein, and the blood flowed freely.

For the arrest of nasal hemorrhage I know of no device so good as one that may be readily extemporized with but a strong piece of cord and some small pieces of sponge. The cord is tied securely to a piece of sponge, cut rounded, and just large enough to be forced backwards through the nostril. Then a number of similar pieces of sponge, with a hole through the centre of each, are threaded successively on the cord. The sponge on the end of the cord is then pushed with a probe or dressing forceps through the nostril quite back to the faucial orifice; and the rest of the threaded pieces of sponge are slid back, one at a time, until the nares is tightly filled. When the patient becomes secure against a repetition of hemorrhage, the plugging is readily removed, one piece of sponge being withdrawn at a time with the dressing forceps. The posterior nares may also be easily plugged by introducing either a slender gum bougie or a piece of thick catgut string, with a cord attached, through the nares, catching one end of it in the fauces with forceps, and drawing it forward through the mouth. To the cord which follows, a piece of sponge or pledget of lint is tied, to be drawn up into the posterior nares.

A method of making unirritating and painless pressure within the nares in cases of obstinate epistaxis, is by a long piece of the intestine of a chicken or other small animal, about twelve inches long, partially filled with either air or water. One end of the intestine is, while empty and collapsed, pushed backward through the nares; when thus lodged, the air or water in the other end is forced by compression with the hand from the pendulous portion into the part lodged in the nares. Strong equable compression can thus be made, rendering hemorrhage impossible.

In a case of *hemorrhage from the intercostal artery*, from homicidal stabbing, I arrested the flow immediately by making pressure within the pleural cavity directly on the vessel, by introducing into

the wound the handle of a door-key. The key was then turned transversely, so as to make direct pressure, and maintained in that position for some hours until there was no more tendency to hemorrhage. The same mechanical action might be effected by the similar use of the handle of an ordinary gimlet.

As a very efficient *substitute for the Esmarch elastic bandage* I suggested some years ago, in an article in the *Philadelphia Medical Times*, the use of a bandage made from ordinary flannel, cut bias, so as to increase its elasticity. Such an elastic bandage, from a material almost everywhere at hand, is, I know from experience, perfectively effective

The hæmostatic action of hot water does not seem to be sufficiently known and appreciated among practitioners. It is so effective and can be so readily applied that it may well displace from practice all other hæmostatics. Water at a temperature not beyond tolerance of the immersion of the hand in it, which is a temperature of from one hundred and fifteen to one hundred and twenty degrees, is ordinarily all that is necessary; but in some cases not amenable to treatment by the ligature, a temperature above 160° Fahr., the coagulating point of albumen, may be necessary.

The absence of a tenaculum may be well replaced by a small fish-hook secured to a penholder.

For dislodging a foreign body in the œsophagus by forcing it downward, an ordinary carriage or riding whip, knotted far enough from the end to insure the proper degree of flexibility, may be an efficient expedient on an emergency.

Materials for splints for the temporary dressing of fractures can be, at almost all times, extemporized from the materials of wooden boxes and binder's boards. To dress fractures of the forearm and of the leg in a case required to be removed to a distance from the scene of the accident, I once improvised an efficient dressing by breaking into strips some ordinary palmleaf fans, which were at hand, and bound them on the limbs. I commend the material for its merits of being elastic and conformable to the shape of the limb. Good temporary dressings can also be made from common straw, cut to proper length and bound in layers on the limb.

For a *readily made fixed dressing* a plan I have resorted to is with ordinary sandpaper as the material. The sandpaper is dipped into warm water to soften the paper and glue, and it is then applied and retained with a bandage. The glue of the sandpaper soon gives rigidity, and body and firmness are produced by the sand and paper. Strong fixed dressings, it should be remembered, can be readily

prepared with the familiar domestic commodities of starch, or with the combination of eggs and flour.

In removing a patient with a fractured thigh or leg, the uninjured limb can be made to temporarily act as a splint and take care of the injured one by simply bandaging the limbs together. It should be borne in mind that many fractures of the long bones can be well treated without any kind of splints. Fractures of the femur are not now generally treated with splints. After coaptation is effected simple extension by means of weights is the only essential. Fractures of the clavicle are, I am convinced from practical experience and much attention to the subject, the most effectively treated by keeping the patients in the supine position of the body, with the head alone slightly elevated to relax the sterno-mastoid muscle, one of the factors of displacement of the fragments. If this position on a level mattress is maintained for only a week or ten days, the tendency to displacement is so overcome that a mere sling for support of the arm and shoulder, or other simple dressing, is all that is necessary.

The simple postural method of treatment, without splints, is applicable to most fractures in the vicinity of joints. In fractures of the upper end of the humerus, splints are usually of no real practical advantage. The injury can be well treated by position of the arm and by support against the thorax, maintained by adhesive strips or bandages, occasionally aided by an axillary pad.

The usual fracture of the lower end of the radius, transverse in direction and produced by a fall on the extended palm of the hand, if properly reduced by longitudinal traction and forced flexion of the wrist and hand, has rarely a tendency to displacement if the wrist and hand are maintained in a state of moderate flexion, without the use of any splint.

The ordinary splint applied on the outside of a fractured jaw is mechanically inefficient for the object, and has no advantage over an ordinary bandage or handkerchief applied to keep the part at rest.

Many surgical instruments are made after traditionally complicated forms. Scalpels, bistouries, and needles should not be crooked. I know of no use for curved knives, and the occasions for the use of curved needles may be limited to a few plastic procedures in cavities. The ordinary surgical needle with its absurd and inconvenient curve I long ago discarded in favor of the more efficient, simple, and cheap glover's needles. A good surgical needle can be readily made from an ordinary sewing needle, broken off above its point and ground to such an oblique point as is given to the hollow needle of the hypodermic syringe.

A common gimlet is an *efficient instrument for opening the mastoid cells* in cases of abscess when there is grave threatening of cerebral complication demanding prompt action.

The patient use of a carpenter's rasp may safely supersede the trephine in cases of fractured skull by cutting away an angle or edge of bone at the point of fracture, and allowing an elevator, such as a small screwdriver, to be inserted beneath a depressed fragment.

In regard to the traditional forms given to instruments, I have inquired of different instrument-makers why the sharp triangular point is made on the ordinary silver probe, but it remains unexplained. I have never seen any surgeon use this curious bayonet point of a probe, and know of no possible use for it.

The facility with which rectal injection can be performed with large quantities of fluids by hydrostatic pressure renders not essential the use of a syringe if a piece of India-rubber tubing long enough can be obtained. The lower bowels may also be distended in cases of intussusception by injecting water and carbonic acid gas, forced from the ordinary mineral-water bottle or siphon, fitted to the rectal tube.

In cases of violent inflammation and traumatic injuries of the eye, needing the immediate use of a mydriatic, the universally present stramonium may well supersede belladonna or atropia.

For antiseptic use many readily procured substances may well replace carbolic acid. None is so cheap and efficient as that most neglected preventer of putrefaction, sulphurous acid, made simply by exposing water to the fumes of burning sulphur in a close chamber. The antiseptic action of a saturated watery solution of turpentine has also the advantage of convenience of procurement and cheapness. For this purpose turpentine should be kept continually in water, and exposed to warmth, and frequently agitated. Diluted alcohol has merits as an antiseptic which have not received proper attention. Recent investigations have proved that the bichloride of mercury is the most powerfnl of all germicides, and that it can be used effectively in unirritating dilutions of one part to two thousand or more of water. These readily obtainable substances prevent the decomposition of animal matters, and, without disputing over the germinal, chemical, or other theories of their action, all surgeons must admit that putrefaction is the most common factor in preventing the healing of wounds, and that it should be avoided.

DIAGNOSIS, PROGNOSIS, AND TREATMENT OF MITRAL STENOSIS.

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The mitral presystolic murmur, although standing about fourth in point of frequency of endocardial murmurs, is, nevertheless, of sufficiently frequent occurrence to be recognized by every one at all familiar with cardiac auscultation. The mitral presystolic murmur and its diagnostic characters were first clearly pointed out by Fauvel, in 1843 (*vide* article by Flint, in the *American Journal of the Medical Sciences*, April, 1882).

Two varieties of this murmur have been described. One variety, by far the more frequent, characterized by Flint as vibratory or blubbering, is rough; the other is soft or "bellows-like." Fauvel described the former, and Walshe and Markham the latter variety of the murmur. Flint says, "a soft mitral presystolic murmur is a very rare physical sign. A rough mitral presystolic murmur, on the other hand, is by no means rare." To support his view of the frequency of the latter murmur, he observes: "From 1858 up to the present time" (1882), "it is not an exaggeration to say that many hundreds of examples have come under my observation during this period in hospital and private practice. Prior to my publication just referred to" (*vide* Flint's work on *Diseases of the Heart*, 1859, and the *American Journal of the Medical Sciences* for 1862), "so far as I know, no writer in this country had described this murmur. I believe that I may add that for many years after those publications it was recognized as a distinct murmur by very few of those who gave more or less attention to auscultation, and, indeed, at the present time" (1882), "it is not so recognized by many."

Contrary to the views expressed by Hope, Walshe, Markham, Flint, and others, Hayden, in his exhaustive treatise on *Diseases of the Heart and Aorta*, says: "I have already stated that the murmur of mitral obstruction is harsh and unpleasant to the ear; I have never met with an example which constituted an exception to this

statement, notwithstanding that Markham maintains that softness is a quality essentially characteristic of presystolic murmur." My own experience is nearly in accord with the statement found on page 216, vol. i. of Hayden's work just referred to. It reads: "The quality of the presystolic murmur is always more or less harsh, and usually decidedly so." In the numerous examples of mitral presystolic murmurs which have come under my observation, the accuracy of the diagnosis in many of these cases having been verified by post-mortem examination, I have not met with a single instance of a soft mitral presystolic murmur. The quality of the mitral presystolic murmur, in my experience, has varied much, all, so far, having been more or less harsh, while the larger portion have been decidedly so. In every case that has come under my care, presenting mitral direct and regurgitant murmur, the presystolic has been harsher than the systolic murmur. I do not wish to be understood as saying that a soft mitral presystolic murmur never occurs, but only that I have never recognized one.

Speaking from personal experience, I have found mitral stenosis complicated by mitral insufficiency in about two-thirds of the cases; others state that the association of both mitral lesions occurs in a still greater proportion in mitral obstruction. Hayden thinks that about one-half the mitral obstructive lesions are unattended by mitral regurgitation.

In the *diagnosis* of mitral stenosis a presystolic murmur and purring thrill are the physical signs of most importance. The quality of the murmur, as I have heard it, and as most authors have described it, is more or less rough, and in the majority of cases very decidedly so. Possibly, in a few instances the murmur is soft, but it must be exceedingly rare, as I have never met with a single example of it, although about forty of the harsh variety have come under my observation during the last eight years. The mitral presystolic murmur, whatever be its quality, begins before the first sound of the heart, and ends when the latter begins. It never occurs with the first sound; whereas, a mitral regurgitant murmur is never heard before the first, but always synchronously with it. The mitral presystolic murmur is harsh, begins rather abruptly, increases in loudness, and ends suddenly while the ear is intent on listening for its continuation. The carotid pulse and apex beat of the heart can be felt to follow the presystolic murmur. If attention is paid to this point, when both mitral presystolic and systolic murmur are present, each may be observed to be separated from the other by an appreciable interval of time. Under such circumstances the harsh abrupt ending of the presystolic will be in marked con-

trast to the gradual lessening of the loudness of the systolic murmur. Moreover, in the majority of cases, the former murmur will be found to be harsher and more unpleasant to the ear than the latter. If now the stethoscope be placed in the left axillary region, the systolic murmur, if not louder in this position, will be frequently more clearly defined, while the presystolic murmur will have disappeared, or become very faint. In some cases in which both mitral murmurs have been present, I have been assisted in differentiating the murmurs by comparing the stethoscopic observations made over the præcordial region with those observed at the lower angle of the left scapula. In the former situation, the systolic murmur is preceded by an abrupt, harsh murmur, which ends suddenly; in the latter position, with infrequent exceptions, is heard only the systolic murmur, which neither begins nor ends so abruptly, nor, except in probably rare instances, is as harsh as the first part of the murmur heard anteriorly.

The abruptness of the ending of the mitral presystolic murmur is easily understood when we remember that the current of blood which gives rise to it, passing through a narrowed auriculo-ventricular orifice, is suddenly reversed during the ventricular systole.

The mitral presystolic murmur is most intense about the left fourth costal cartilage, or just above and a little to the right of the apex beat. It is absent or faint at the base of the heart, especially at the right base, is rather infrequently heard in the left axillary region, and some writers on physical diagnosis say it is never heard posteriorly at the lower angle of the left scapula, although Hayden states that in one instance he heard it in the last position.

When a presystolic murmur exists, is it easy to diagnose it? Dr. Andrew states that "it must be confessed that the diagnosis of a presystolic from a systolic ventricular murmur is one of the most difficult tasks in the physical examination of the heart, and is often all but impossible." (Hayden on *Diseases of the Heart and Aorta*, p. 202.) Flint observes: "It may be said of a truth that when its distinctive points have been fully understood and verified by examples, no one of the cardiac murmurs is more readily recognized than the mitral presystolic murmur. (*The American Journal of the Medical Sciences*, April, 1882.) On this point Flint is in accord with most observers who have given special attention for a length of time to the diagnosis of mitral stenosis. Of late my experience has been, when the heart is not acting very rapidly or irregularly, that I have not encountered much difficulty in satisfying myself of the presence or absence of the mitral presystolic murmur. This murmur, more than all others, requires for its appreciation clear

recognition of the cardiac sounds; if the heart, therefore, be acting so rapidly or tumultuously that its systole and diastole cannot be defined, it is impossible to diagnose this or any other heart-murmur, although a loud one may be present. To be able to readily distinguish the presystolic from the systolic murmur requires very careful training of the ear to appreciate the rhythm of endocardial murmurs.

Hayden calls attention to five conditions which may give rise to murmurs simulating the mitral presystolic murmur. With proper care all these sources of error, as he clearly points out, may be avoided.

Is mitral stenosis always accompanied by a presystolic murmur? Walshe says, "the murmur is frequently absent." Doctor Waters believes that "presystolic murmur is far more frequently absent than present, even when there is great obstruction at the mitral orifice." (*Diseases of the Chest*, second edition, 1873; *vide* Hayden on *Diseases of the Heart and Aorta*, 1875.)

Da Costa says: "Undoubtedly there are instances in which no murmur reaches the ear to show that the valves are damaged. All the instances I have met with of valvular disease, unaccompanied by blowing sounds, have been instances of disease at the mitral orifice, and of extreme narrowing of that orifice. They were all attended with excessive irregularity of the action of the heart, and with hypertrophy. They all produced difficulty of breathing. They all presented this peculiar clacking sound most marked near the apex." Flint states that "it is by no means true that a rough mitral presystolic murmur is present whenever an obstructive mitral lesion exists. A mitral obstructive lesion may be found after death, when a mitral presystolic murmur had not been produced." (*The American Journal of the Medical Sciences*, April, 1882.) Flint thinks when the mitral murmur is absent, a mitral stenosis existing, that the obstruction is due to "contracted, thickened, or calcified valves," incapable of being set in vibration by the current of blood from the auricle into the ventricle. In reference to the presence of a mitral presystolic murmur in mitral stenosis, Hayden's propositions (*c*, *d*, and *e*) read as follows:—

"(*c*) That it is never permanently absent in cases of this lesion; (*d*) that it is very seldom temporarily absent in such cases; (*e*) that in these exceptional instances, the explanation of its absence is almost invariably to be found in debility of the heart." (*Diseases of the Heart and Aorta*, p. 904.)

Dr. Balthazar Foster observes: "A special peculiarity of the presystolic murmur is its variability; it is the only organic murmur which disappears and reappears as the heart-conditions change. For

instance, a murmur, inaudible while the patient is at rest, is developed by a little exercise; or again, an irregular tumultuous action of the heart masks all murmur, which becomes distinct as the heart steadies down under the action of digitalis." (*Dictionary of Medicine*, Quain, 1883.)

It will be observed that Hayden lays great stress on the presence of a mitral presystolic murmur, and believes that it is never absent except in cases with extreme feebleness of the heart. Flint, while admitting its absence from the feeble condition of the heart late in the disease, thinks the character of the valve lesion accounts for its absence in some cases, the valve being, in the cases in which no murmur is present at any time, incapable of vibrating on account of the extreme rigidity of the leaflets from calcification, etc. Of the six cases coming under my observation, in which the post-mortem examination showed mitral stenosis, the murmur was absent in only one individual. In this patient, during my attendance on her, general dropsy and great pleural and pericardial effusion existed, with a feebly acting heart. Hayden says, "in two cases only out of a total of eighty-one, or in the proportion of 2.4 per cent., was the murmur actually suspended under my personal observation, yet in both of these it was resumed after a brief interval." Of his fatal cases (fifteen), the murmur was not heard by him in three; these, for the most part, presented themselves to him after the circulation had become very weak. In three cases in which no mitral presystolic murmur was heard, I diagnosed mitral stenosis, from the presence of thrill and associate symptoms. The accuracy of the diagnosis in these cases has not been verified to my knowledge by post-mortem examination, or even the development of a murmur.

Is a mitral presystolic murmur present only when mitral stenosis exists; or, in other words, is the murmur pathognomonic of mitral stenosis? Here, again, authors differ. Flint says: "A well-marked, rough, mitral presystolic murmur may be present, and not be due to any mitral lesion. I am not aware," he says, "of this clinical fact having been stated by any other medical writer. It was stated in my article on the Cardiac Murmurs, in 1862, and I have reiterated it in subsequent writings. In the article just referred to, I gave the synopsis of the history of two cases in which the presystolic murmur was noted during life, and no lesion at the mitral orifice sufficient to account for the murmur found after death. I have met with several instances since that time. In all there existed aortic lesions which occasioned free regurgitation." (*The American Journal of the Medical Sciences*, April, 1882.) Flint's observations, although first published about twenty years ago, so far as I

am aware, have not yet been verified. I have met with only one case in which an aortic regurgitant murmur was associated with the mitral presystolic murmur. In that instance the aortic valve was incompetent, and the mitral orifice was very much contracted. Flint's explanation of the occurrence of a mitral presystolic murmur without mitral stenosis is, to say the least, ingenious, although it has not escaped criticism by Hayden. Dr. Hilton Fagge, whose memoir was published in 1871 (Hayden on *Diseases of the Heart and Aorta*), seems to have entirely overlooked or disregarded the observations of Flint. Fagge states: "Hitherto, I believe, no single instance has been recorded in which a presystolic murmur has existed during life, and in which the mitral orifice has not been found after death to be very decidedly narrower than usual." "Dr. Balfour declared his opinion, in 1871, that presystolic murmur 'may be conclusively accepted as distinct proof of the existence of a permanent deformity, even though the murmur itself should subsequently disappear, as it frequently does.'" Hayden remarks: "Judging strictly within the limits of my own experience, and drawing my conclusions from statistics given, I feel justified, therefore, in holding—

"(*a*) That presystolic murmur is pathognomonic of auriculo-ventricular narrowing;

"(*b*) That it is never present where auriculo-ventricular narrowing does not exist;

"(*c*) That it is never permanently absent in cases of this lesion."

Foster says the pathognomonic sign of mitral stenosis is "a murmur preceding the systole and ending with its commencement."

It is my habit to examine the heart of nearly every one coming under my care, no matter what be the character of the illness, but I have not yet met with a case presenting the mitral presystolic murmur, the heart of which was examined after death, that did not reveal mitral obstruction.

I have found the mitral presystolic murmur to vary much in loudness from time to time, but I do not think that I can name a single instance of the entire absence of this murmur after it had become fully developed, except during the conditions mentioned by Hayden.

Thrill.—The fremitus or purring thrill of mitral stenosis is best felt in the fourth intercostal space and immediate neighborhood of the apex beat. It is distinctly presystolic, differing widely from the extremely rare thrill of mitral insufficiency, the latter always being systolic. Fothergill states: "The thrill is often absent, but when present is of great diagnostic value, and marks the case as

one of stenosis." (*The Heart and its Diseases*, Fothergill.) Hayden observes: "The thrill is frequently absent when murmur announces, in the most positive manner, that mitral narrowing actually exists. Out of the total of 81 cases, it was present only in 41 instances; and of the 15 cases in which death occurred, and the body was examined, it was noted in 6 only." (*Diseases of the Heart and Aorta*, Hayden.) The fremitus of mitral narrowing is sometimes simulated by a pericardial friction fremitus, but a mistake in diagnosis may be avoided if proper precautions are observed.

Other physical signs may be present to aid in the diagnosis, but if thrill and murmur are both absent, they are rarely of sufficient value to establish the diagnosis of mitral stenosis.

The first sound of the heart is shortened, intensified, and frequently reduplicated; the second sound is feeble or absent at apex, but intensified at left base. (Dr. James Andrew, vide *The Heart and its Diseases*, by Fothergill.) It should be borne in mind that the pulmonary second sound becomes very feeble when the right side of the heart dilates sufficiently to admit of tricuspid regurgitation. Signs of dilatation of the left auricle appear comparatively early, and those of enlargement of the right side of the heart later. Pulmonary hemorrhage is more frequent in mitral stenosis than in any other variety of valvular lesion of the left side of the heart. Passive congestion of most of the internal organs takes place late in the disease. The majority of cases of mitral stenosis end in death before general dropsy results.

Prognosis of Mitral Stenosis.—If the prognosis and treatment of mitral valve disease are not modified by differential diagnosis between constrictive and regurgitant lesions, we should scarcely be justified in devoting so great attention to mitral stenosis apart from mitral incompetency. On these points Fothergill speaks with considerable force. "It is," he says, "unfortunate that so much stress is laid at present upon the diagnosis of the two forms of mitral murmur, because the recognition of the exact lesion does not bear much upon either prognosis or treatment; authorities differing as to whether the prognosis of stenosis or regurgitation is worse; and agreeing that in both cases the correct plan of treatment is to build up the right heart by the administration of digitalis, iron, etc. The day of the prominence given to the presystolic murmur will ere long be over."

Such an assertion coming from so good authority deserves due consideration, yet I think it is too sweeping, and should not be blindly accepted.

Dr. Sansom, of London, thinks it is rare for mitral obstructive

lesions to be of so long a duration as some cases of mitral regurgitation.

Dr. Flint says, "a rough presystolic murmur may represent a degree of mitral obstruction which may be tolerated for years." (*The American Journal of the Medical Sciences*, April, 1882.) Three of his cases have extended over periods of ten, twelve, and fifteen years, respectively.

Lesions of the mitral valve, regurgitant and constrictive, may be divided into two classes. The first class should include those lesions that do not materially interfere with the function of the heart; unknown to the patient, are unattended by any special symptoms, and never compromise comfort or life to a great extent, unless an individual, whose heart is thus affected, should suffer from some exhausting disease, which may weaken the heart and cause the valve to reinflame. This form of valvular disease is frequently only accidentally discovered. The second class includes all those constrictive and regurgitant lesions, which cripple the heart and destroy life.

We can the more readily appreciate the relative prognosis of mitral stenosis and regurgitation, by studying the sequential lesions of each form of mitral valve disease. It is unnecessary to bring forward statistics to prove that lesions of the tricuspid valve admitting free regurgitation more speedily result in death than similar lesions at the mitral orifice. It is the common experience of most physicians who have met with tricuspid regurgitation, to find the cavities of the right side of the heart to enlarge by dilatation and hypertrophy, and blood stasis with pulmonary œdema and general dropsy to take place, followed by death in the course of six months to two years.

The sequential lesions of mitral stenosis as stated by all who have given much study to this subject, and as first pointed out by Dr. Adams, about fifteen years before the mitral presystolic murmur was described by Fauvel, are as follows:—

When the mitral orifice is sufficiently constricted to decidedly obstruct the flow of blood from the auricle into the ventricle, the auricle is compelled to contract more forcibly to empty itself. At first slight hypertrophy of the auricle takes place, but its thin wall soon begins to yield to over-distension, and then dilatation out of all proportion to the hypertrophy results. At this stage, when the weakened and dilated auricle is unable to propel its contents through a small orifice in the time allotted for its systole, the pulmonary circulation begins to suffer, and, in turn, the right ventricle, compelled to contract upon a larger quantity of blood than usual, also

begins to enlarge by hypertrophy and dilatation. While the right ventricle is still strong, the left auricle being dilated, the lungs suffer most, hence blood-spitting, cough, dyspnœa on exertion, and liability to take cold on exposure, are well pronounced. This condition of things soon produces lowered vitality, and the right ventricle, in which hypertrophy for a time kept pace with the dilatation, dilates from distension and weakness of its wall, until, at last, tricuspid regurgitation results, followed, ultimately, if the unfortunate sufferer live long enough, by general dropsy. The left ventricle, provided no mitral insufficiency coexists, remains nearly normal or slightly atrophies.

The first of the sequential lesions of mitral regurgitation is seen in the left ventricle. This portion of the heart, for a long time, if no undue strain is put upon it, hypertrophies sufficiently to enable it to compensate by its increased power of contraction for the loss of blood through the mitral orifice. As the left ventricular wall is quite thick and strong, compensation is possible so long as the patient is well nourished, and avoids everything that overworks the heart. Loss of compensatory hypertrophy is usually due to over-exertion, mal-nutrition, and depressing influences, resulting in dilation and degeneration of the ventricular wall. In speaking of mitral valve lesions, Flint observes: "All the symptoms and effects referable to the respiratory system are more marked when the lesions are obstructive than when they are only regurgitant." (*Diseases of the Heart.*) "Hope remarks that he had met with pulmonary apoplexy more frequently in connection with great contraction of the mitral orifice, with or without hypertrophy of the right ventricle, than in any other association." (*Diseases of the Heart and Aorta*, Hayden.) In some cases of mitral regurgitation, the lesion is so extensive, and the loss of blood so great, that it is impossible for compensation to be established by hypertrophy of the left ventricle.

Mitral stenosis and regurgitation existing together make the prognosis more unafavorable than when one of these lesions exists alone. Compensation seems to be better effected in mitral regurgitation when aortic valve lesions coexist. It has not been my experience to find the same benefit result from aortic valve disease in mitral stenosis.

Hayden believes that the longer the mitral presystolic murmur the greater the obstruction, and hence the graver the prognosis. It is in such cases that he has found associated the postdiastolic and presystolic murmurs.

Treatment.—In the few words that I shall devote to the treatment of mitral stenosis, I shall not discuss those measures that seem to me equally efficacious in both mitral obstruction and regurgitation.

Rest in the Recumbent Posture.—In those cases in which mitral obstruction is giving rise to inconvenience, rest from time to time in the recumbent posture, I have found to aid greatly in relieving the pain and sense of constriction around the heart, symptoms which, as a rule, are more pronounced in mitral constriction than in regurgitation.

Avoiding Stimulus.—Total abstinence in many cases may be observed. Irritability of the heart is always well marked late in the disease, and alcohol frequently increases this. If any stimulus is given, it should consist of the lighter wines. This course is applicable to cases of mitral regurgitation, but until late in the disease does not seem so imperative.

Protecting the Body from Sudden Changes of Temperature.—When it is understood, next to the heart the lungs suffer most from this form of valvular lesion, the importance of preventing chilling of the body will be appreciated. Hæmoptysis, pulmonary apoplexy, or pneumonia may result from exposure to damp and cold. The chest, especially, should be well clad. As in pulmonary phthisis, a chest-protector should be worn during the cold season of the year.

Local Treatment.—This consists of cups, dry or wet, leeches, blisters, and milder counter-irritants followed by poultices, over the præcordium. Wet cups I have never used. Dry cups over the heart, both early and late in the disease, give great relief. It has been my experience to find pericarditis or pleuro-pericarditis relatively much more frequently associated with obstructive than with regurgitant lesions at the mitral orifice. It is in such cases that a few leeches over the heart afford great relief. Local abstraction of blood is very beneficial when the heart is acting tumultuously on account of its cavities being over-distended with blood. Counter-irritants followed by poultices afford a sense of comfort.

Special Internal Medication.—In mitral stenosis the auricle contracts ordinarily in too short a time to allow sufficient quantity of blood to flow into the ventricle through a narrow mitral orifice. By special medication we desire to slow and tone up the heart's contractile power. Digitalis slows the heart and increases the force of its contraction. It has been the remedy in these cases for a number of years, but to its use objections are not wanting; it frequently disagrees with the stomach, its poisonous effects are feared if we

are compelled to continue its use too long, and moreover, some cases of mitral stenosis do not seem to be as favorably influenced by it, as most, if not all, of those of mitral regurgitation. Of late much has been said and written about the use of convallaria maialis, or majalis, in the treatment of cardiac disease. Some have asserted that this old and new remedy in the treatment of dropsy, is more adapted to the treatment of mitral obstruction than to mitral regurgitation. My experience with this agent is limited. The cases in which I have tried it have been desperate, and because I did not get satisfactory results from its use I do not feel inclined to condemn it. I am glad to know that we shall be favored this morning with the results of Dr. Bruen's experience in the use of convallaria majalis.

In conclusion, I may add, from a careful study of mitral stenosis, I have been led to believe:—

That it is often of some practical importance to diagnose the obstructive from the regurgitant form of mitral lesion;

That the prognosis and treatment of mitral valve affection are more or less modified by the fact of whether the lesion be stenotic or regurgitant.

LITHÆMIA.

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While I believe that, as a profession, we are keenly alive to many of the results of lithæmia, I cannot but feel that we too frequently overlook the condition which induces them, considering the results as the sole and only cause of the physical ailment. Few among us would fail to recognize atheroma of the arteries, apoplexy, angina pectoris, or chronic Bright's disease, especially when the latter is associated with dropsy and albuminuria, yet how often do we pass by unheeded the condition which inevitably leads to one or more of these, until its effects are registered on almost every organ of the body.

The leading medical journals have not been silent on this subject, bearing abundant testimony to the researches of George Johnson, Gull and Sutton, Mahomed, Milner Fothergill, Saundby, Da Costa, and others in this direction; but the leading text-books of the day, the *vade mecum* of so many practitioners, almost universally ignore it altogether.

Without laying claim to any personal advantage in the matter, but simply because, in a somewhat extended intercourse with the younger members of the fraternity, I find many who are not sufficiently alert to the importance of the subject, I have thought a paper devoted to it might find some willing listeners, and this induced me to lay before you some thoughts upon the subject, to most of which I lay no claim of originality, only begging that those to whom my story may be as a "thrice-told tale," may bear with me for a few moments.

Lithæmia is a term applied by Murchison to a *condition*, characterized by a "saturation of the body-fluids with nitrogenized waste in its most persistent form, viz., lithic or uric acid." Fothergill prefers to call it lithiasis; Mahomed dubs it "Bright's diathesis," or "high-pressure diathesis;" Gull and Sutton term it

"arterio-capillary fibrosis." It is known, also, as the "uric acid diathesis," or the "gouty diathesis." It matters but little by what name it may be called if only it be recognized while it is still only a *condition*, and before it has left its indelible impress on the organization which fosters it. The term proposed by Murchison seems to me the most appropriate, however.

It is a condition which may be either inherited or acquired. Mahomed believes it is worthy the name of *diathesis*, using that term to signify "a habit or tendency towards wrong-doing of a particular kind, by either blood, tissues, or organs." The diathesis consists in the tendency to toxæmia with uric acid. As an inherited condition it is most familiar to us in the form of gout. It would seem to be due to arrest of the process of fitting the nitrogenous tissue waste for excretion at the point where uric acid is evolved, without permitting it to continue in the process of oxidation until the very soluble and perhaps innoxious urea is produced. Were uric acid as freely soluble and as readily eliminated as urea, this might have no serious sequence; but the opposite pertains, and the uric acid is returned again and again on the rounds of the circulation, gathering as it goes, so long as the conditions which evoke it continue, until it becomes a toxic agent developing its train of functional derangements, and in due time evolving organic diseases, varying according to individual proclivities. It would seem that its development is fostered by whatever increases nitrogenous *débris* over and above the individual powers of combustion, or by whatever diminishes the powers of oxygenation below the necessities of the case. Either increase of materials to be transformed into urea or diminution of the powers of transformation appears to lie at the base of its development.

Its presence is evinced by certain symptoms which are pathognomonic, although these may be accompanied by any cluster of a host of others which vary with almost every case. As a toxic agent it first influences the circulatory apparatus, and long after it has dragged under its baneful influence other structures its presence can still be most unmistakably recognized here. Its initial effect is to excite the muscles of the arterioles either by centric influence through the vaso-motor nerves or by peripheric irritation. From an intermittent paroxysmal hyperactivity as first induced, there is developed a persistent tonic activity, with hypertrophy of the muscular coat of the arterioles. The contraction of the arterioles, offering an obstacle to the efflux of blood from the arteries, produces a hyperdistension of the arterial system. This, by the greater resistance to be overcome in further expanding the vessels to receive

the fresh blood from the left ventricle, calls for increased effort on the part of the muscular walls of this cavity, and, as this is gradually educed, left ventricular hypertrophy naturally follows.

With increased resistance at one end of the arterial system, and increased pressure on the new blood received at the other, we have developed one of the most characteristic symptom of this condition, *i. e.*, the pulse of high arterial tension, or the "high pressure" pulse; which, being a character of so many cases of Bright's disease not otherwise recognizable, led Mahomed to apply the name of "high pressure diathesis" to the condition under consideration.

In the same manner is induced another of the pathognomonic phenomena, the accentuation of the aortic second sound, a symptom first noted by Sibson as due to high arterial tension. The hyperdistension of the elastic arteries leads to increased recoil in cardiac diastole, and the blood attempting to rush into the dilating ventricle literally slams the aortic valves "to with a bang:" producing a second sound which exceeds the first in intensity, even at the cardiac apex.

The high arterial tension produces still another symptom, which is quite pathognomonic; I refer to the increased urination. The patient will excrete an increased quantity of light-colored urine of low specific gravity, as a direct result of increased intra-arterial pressure.

With these functional disturbances of the circulatory and renal systems are to be found other and varied functional disorders. Dr. Da Costa, in a valuable paper in the *American Journal of the Medical Sciences*, has called attention to the many forms of nervous disturbance so engendered. Among those most commonly met with are vertigo, tinnitus aurium, localized muscular cramps, tingling of the surface, especially a pricking sensation like the sticking of innumerable needles into the legs, neuralgias, headache, etc. Indeed, the centres of intellection may be so disordered as to induce temporary insanity. Attention to this condition has been called by a paper from the pen of Fothergill, read before the meeting of "The Society for the Protection of the Insane and the Prevention of Insanity" recently held in Philadelphia. I have met with one instance of this nature, where a patient some years before had been adjudged insane, recovering after a short sojourn in an insane hospital. She presented recurring symptoms of a similar nature, which were promptly arrested by such treatment as a recognition of her lithæmia suggested.

Indeed any organ or tissue of the body may suffer. Simulative diseases or true inflammations may be and no doubt are thus in-

duced. Prominent among these may be named muscular rheumatism, bronchitis, pneumonia, asthma, angina pectoris. I have now under my care a case of the last named symptom, which at times is exceedingly severe, in a robust gentleman about 40 years of age. It is to all appearances of purely functional origin, and directly due, I believe, to general vasomotor spasm, cardiac as well as systemic. He has been under the care of numerous practitioners, some of high standing, and has spent at their direction several winters in the South on account of recurring threats of pneumonia. All this time for ten or twelve years he has suffered from more or less aggravated attacks of angina. The lithæmic symptoms being well-marked suggested a course of treatment which has proven eminently successful.

The pathognomonic symptoms, however, are those already given as associated with the direct effect of the toxic agent on the circulation. When these symptoms exist more or less constantly, or even intermittently, from slight causes, the condition of lithæmia is suggested; whatever be the train of symptoms which lie in their wake. Their recognition is of paramount importance, as they suggest a cause for the diseased condition and a line of treatment, which alone can be of service, as all else must be purely palliative and empiric. In the recognition of this series of symptoms and its suggestiveness lies the solution of many, very many, otherwise intricate and puzzling problems; and the only scientific and successful management of the same.

But this high arterial tension cannot long exist without inducing more serious organic changes. Long before most of such cases solicit the advice of a physician, the arteries have ceased to be flaccid, thin-walled conduits. The radials may be rolled under the finger and traced far up the forearm, until lost in the depths of the intermuscular spaces. The temporals appear as tortuous cords on the forehead. The entire arterial and even capillary systems have undergone a change due to thickening of the fibrous *tunica intima*. Gull and Sutton first called attention to this condition, and named the disease "arterio-capillary fibrosis," but the cause exists long before this result, and the term is consequently inappropriate except as applied to the result. This connective-tissue hyperplasia invades the valves of the heart leading to their deformity, and even extends from the minuter vessels into the organic structures. This is most common in the kidneys. Here, in a vast majority of cases, perhaps in all, if sufficient time be granted, is developed that form of Bright's disease known as interstitial nephritis, resulting in the "red granular," or "gouty" kidney. This is the form of Bright's

disease in which albuminuria and dropsy are frequently absent altogether. It is the most common pathological accompaniment of lithæmia. As it presents no symptoms, in the vast majority of cases, save those of lithæmia, the recognition of the latter is rendered doubly serviceable; suggesting, as it does, if it have persisted for a lengthened period, not only the texæmia, but the kidney of interstitial nephritis as well. I feel satisfied that in many, perhaps the majority of cases, of "granular kidney," lithæmia has preceded any kidney deterioration, and been the inciting cause thereto; although I also believe that in some cases the attack has originated in a renal congestion otherwise occasioned, and the lithæmia is the secondary condition. Under either circumstances the renal disease is only recognizable in the majority of cases by the associated symptoms of the accompanying lithæmia.

Again, this arterio-capillary fibrosis, while apparently strengthening the over-distended arteries, leads directly to their fragility, for atherematous patches appear and spread. These are most commonly found on the arch of the aorta, where the brunt of the distending force is received, but it frequently is appreciable in all the vessels within reach; roughening them, and sometimes inducing thrombosis or embolism, but more frequently favoring the development of aneurisms, especially of the miliary variety, and apoplexies.

I believe that the cause of causes of atheroma of the arteries is lithæmia, and that a vast majority of cases of apoplexy is directly traceable to this diathesis.

The *diagnosis* of lithæmia rests on the existence of the group of symptoms already alluded to, viz:—

1. A pulse which is persistent, hard, long, and cord-like—the pulse of high arterial tension.
2. Accentuation of aortic second sound.
3. Hypertrophy of left ventricle.
4. Increased urination.

To these may be added gouty symptoms, if the tendency of the uric acid is to deposit in the sluggish circulation about the articulations; uric acid calculi with their train of symptoms if the deposits occur in the urine after its secretion; atheroma, apoplexy, aneurism, and various other functional and organic changes, induced by the toxic agent. The diagnosis rests on the pathognomonic symptoms which are present, except in cases of such an amount of atheroma as rob the vessel of its capacity for dilatation; or deformity of aortic valves supplanting a regurgitation for the accentuated second sound; or cardiac failure. In such cases the records of the agent are sufficiently apparent to render its long-continued presence a surety.

The *prognosis* depends on the period of discovery, or in other words on the amount of mischief already induced. At each link in the chain of morbid changes an inventory of the amount of healthy and diseased tissue in stock alone can enable us to properly estimate the prognosis. If recognized early all pathological changes may be prevented.

Almost at any stage in the process the progress may be arrested or at least retarded, but the changes themselves are irreparable. Hence the organism is crippled to a variable extent in all chronic cases.

Treatment.—As the disease depends on an arrest of the metabolism of nitrogenized materials existing in the blood, the most rational treatment consists in lessening, so far as possible, the amount of material convertible into a morbific agent. This has proven as satisfactory in practice as it is plausible in theory. A vegetable diet with milk as the chief animal food has proven most efficient.

As uric acid may, by further oxidation, be converted into urea, hygienic measures for the more nearly complete oxidation of the nitrogenized *débris* rank next in order of importance. Physical exercise in well-ventilated rooms or the open air accomplishes this so far as possible.

If, however, despite dietetic and other hygienic measures, enough of unconverted uric acid remain in the blood to serve as a toxic agent, measures for its more speedy elimination are demanded. Uric acid exists in the blood, perhaps, chiefly as an acid urate of sodium. This is not nearly so readily soluble as some other of its salts, as proven, by experiments, by Roberts, of Manchester, and published in his work on "Urinary and Renal Diseases," and also more recently by Garrod, who, in a paper in the *British Medical Journal*, for March 17th ult., publishes a table of experiments. The solvent used was distilled water at a temperature of living human blood.

"Uric acid is soluble in	8000 parts.
Urate of calcium in	2800 "
Urate of ammonium in	2400 "
Urate of magnesium in	1600 "
Urate of sodium in	1130 "
Urate of potassium in	500 "
Urate of lithium in	220 "

Urates of iron and lead are insoluble."

From this table it is evident that lithium furnishes the most readily soluble compound with uric acid. Next to this stands

potassium. Either of these substances may be taken in sufficient quantity and for a sufficiently long period without injurious effects. In a case presenting no severe symptoms, I generally employ the granulated effervescent citrate of lithium. In some cases the citrate, or acetate of potassium, or the liquor potas. seems to bring more speedy relief, after which the lithium salt being more palatable may be continued. Vichy or Carlsbad salts may, in mild cases, be all that is necessary.

In some instances the severity of the symptoms calls for a physiological antidote to relieve from the serious or even fatal results which are threatened. Potassium bromide in large doses, with or without potas. acetat., has been of most service in my hands for the relief of the nervous symptoms. For the angina pectoris, at once the most painful as well as most serious toxic symptom, depending, as it does, on general vaso-motor spasm, cardiac as well as systemic, the speediest possible relief is demanded. Nitrite of amyl is here the remedy, *par excellence*. It may be given by inhalation, or internally in doses of three to five drops on ice-cold water, if given *per orem*, and repeated, if necessary, with the almost confident promise of speedy relief. This relief will, however, be transient, unless secured by the bromides with or without other potassium salts.

For the complex conditions which may arise, symptomatic treatment is demanded. What I wish to render prominent is the importance of finding behind and beneath the mass of pathological *débris* the morbific agent, and of attacking this whatever else we may do or leave undone. I desire to make prominent the assertion that in chronic Bright's disease without dropsy, in atheroma of the arteries with cardiac hypertrophy, and in angina pectoris, and a host of other functional disturbances, if the symptoms of lithæmia be present, and they usually are, this is the condition against which therapeutic measures are to be leveled, if we sufficiently consider the present relief, as well as future well-being of our patients.

In this hasty sketch I have only been able to outline what I conceive to be one of the most important and far-reaching problems of modern medicine.

CLINICAL NOTES ON THE USE OF CONVALLARIA MAJALIS.

By EDWARD T. BRUEN, M.D.,

DEMONSTRATOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF PENNSYLVANIA, ETC. ETC.

In the present state of our knowledge of the action of convallaria majalis we are obliged to accept the records of clinical experience, even if they have been based on comparatively a few cases. There is all the more interest centred in this drug, since it has been made of late the subject of very conflicting testimony from the physiological laboratory on the one hand, and from the bedside observation of the clinician on the other.

In 1851 G. F. Waltz discovered in the convallaria majalis two active substances, convallarin and convallamarin. The first is crystalline, insoluble in water, and, according to Dr. Marmé's experiments (Schmidt's *Jahrbucher*), when taken in doses of three or four grains, acts as a simple purgative. The glucoside convallamarin is soluble in water, and is the principle to which the plant owes its action on the circulation. A synopsis of the action of convallaria upon the circulation establishes, according to Marmé, that it kills by direct action on the heart, and in moderate doses first slows then quickens the pulse. Previous divisions of the vagi do not interfere with the development of these phenomena. These observations have been confirmed by other investigators,[1] their experiments showing that it slows the action of the heart and increases the blood-pressure decidedly. If a toxic dose has been given, the heart's beats become very rapid and irregular, the arterial pressure still being much above the normal, finally the pressure begins to fall, the cardiac pulsations to grow more feeble, and death occurs through syncope. The pneumogastric nerves are weakened, but never paralyzed, whilst the general nervous system is not affected.

[1] Prof. See (Bulletin de l'Acad. de Méd., No. 27, 1882) and S. Isaew (Hoffmar's Med. Schwalbes Jahrb., 1883, page 22).

Dr. Isaac Ott (*Archives of Med.*, Feb. 1883) has found that the arrest of the heart is systolic, the heart muscle not being able to respond to the most powerful galvanic stimulation.

From this testimony it would seem evident that convallamarin acts almost exclusively upon the heart and its contained ganglia; possibly, also, upon the vaso-motor system. Diuresis and purging have followed its use in the lower animals, and the drug is stated to have been long used by the Russian peasantry for the relief of dropsy. This brief synopsis includes the most important facts from the physiological laboratory.

The following conditions have been chosen as typical ones, illustrating clinically the employment of convallaria:—

Case I. was seen in consultation with Dr. F. W. Robinson, of Philadelphia. The patient, a lady about 35 years of age, previously very robust, had been taken with pneumonia on the afternoon of the 7th of March. The earliest symptoms were those of intense pulmonary congestion; the surface of the body being cyanotic, and dyspnœa very pronounced. The lower part of the upper lobe and the inferior lobe on the left side were involved, also the base of the right lung.

The interesting feature of the case was the action of the heart. From the first this was extremely irregular and very rapid, about 120 per minute. Appropriate treatment was carried out during the 7th, 8th, and 9th, including bleeding from the arm; digitalis in full doses; strychnia, $\frac{1}{30}$th of a grain, four times daily; subsequently, the free use of cardiac stimulants. The irregularity of heart, if possible, became more pronounced than ever, so that on the 9th the digitalis was discontinued, and the fluid extract of convalaria in 15-drop doses every two hours was substituted. Within thirty-six hours the action of the heart became nearly regular, and the pulse fell to 80. The patient was roused from a state of impending death, and for a time we entertained hopes of recovery. When the convallaria was first given, the left ventricle was contracting vigorously through the effect of the digitalis previously used, but the gain had been solely in the direction of the increase in systolic muscular power. At the end of thirty-six hours after the use of the convallaria, the action of the ventricle having weakened, we combined the convallaria with the tr. digitalis, with most satisfactory results, so far as the cardiac action of these drugs was concerned; and the good effects persisted until the 16th, when the strength of the patient was exhausted, and death ensued.

My first classification of conditions in which convallaria has been serviceable to me is—

(1) Those cases of acute disease of the lungs in which irregularity of the heart is a symptom. In these cases the action of the convallaria is helped by its combination with digitalis, the latter drug having a principal influence as a tonic to the cardiac muscle, the former exercising a principal influence upon the inhibition of the cardiac rhythm, possibly by stimulating the vagi.

(2) In organic valvular disease the convallaria is most useful in cases of mitral obstruction. In these the action of the heart is most apt to be irregular, because the volume of blood returned to the left heart through the pulmonary circulation has not time enough to empty itself through the left auriculo-ventricular opening into the left ventricle. Relief of pulmonary congestion is the most constant indication for treatment. This has been met by venesection, by cups, by rest, by digitalis; but since digitalis is more of a tonic to the cardiac muscle than a regulator of cardiac rhythm by its stimulating effects upon the vagi, we often find its use unsatisfactory. The indication is to slow the rhythm of the heart, and thus permit the right heart and left auricle to empty themselves into the left ventricle: *afterwards* it becomes needful to administer cardiac stimulants. In the out-patient department of the Children's Hospital, Philadelphia, the treatment of cases of mitral obstruction with convallaria, has been most encouraging, using ten drops of the fluid extract, three to four times per diem, with or without the associated use of digitalis.

(3) Irregular heart as a symptom of mitral regurgitation has been less positively benefited; since in these cases cardiac irregularity is a symptom of cardiac fatty degeneration. On the contrary, in mitral obstruction irregularity is an initial symptom.

(4) Convallaria loses its effectiveness in valvular heart disease in proportion to the amount of fatty degeneration of the heart. Assuming as proven that the vagi are stimulated by digitalis, and that the reduction in number of the cardiac pulsations when digitalis is exhibited, is due to this stimulation; it has been commonly found that when there is advanced fatty change in the heart, the inhibitory effects of digitalis are less perfect, since there is less muscle through which the vagi could assert their influence. Moreover, in fatty heart a more powerful cardiac stimulant, such as digitalis, is required, and not a regulator such as convallaria. In advanced valvular heart disease, or cardiac failure in the catarrhal nephritic forms of Bright's diseases, convallaria has not proven as useful as digitalis.

(5) The drug is, however, of great service in cases where palpitation and dyspnœa, rather than deficient cardiac systole, are the

prominent features. Broadly speaking, cases of phthisis or asthma in which palpitation and dyspnœa are prominent symptoms, are much benefited by this drug, before cardiac failure from advanced fatty changes ensues.

(6) Its effect is often brilliant in purely functional heart disorder, especially palpitation and irregular cardiac action dependent on general debility. Also in cases of anæmia or hysteria, and to remedy the irregular action of the heart as caused by tobacco. In conclusion, it is proper to state that the preparation employed has been the fluid extract. (Parke, Davis & Co.) The doses 15 to 20 drops, given every three hours in adults, until the desired effects have been produced. Smaller doses have proven entirely negative. The drug is by no means a substitute for digitalis, which combines the properties of a cardiac tonic and regulator to a greater degree than any other one drug in our pharmacopœia. Convallaria has two great advantages over digitalis, which have been brought out by Beverly Robinson, M.D., in the New York *Medical Record* for April 14, 1883.

(1) Convallaria is well borne by the stomach of most patients suffering with chronic cardiac disorders. The uræmic condition in advanced cardiac and renal cases will often account for its rejection.

(2) Cumulative effects are not to be apprehended. Nevertheless, the action is usually prompt, and therefore, a week or ten days' use will, I believe, decide positively the value in any special case.

This presentation of a personal experience with convallaria has seemed to me permissible only because the investigation of the drug is in such an incipient stage. It would appear that the action of convallaria is not in direct harmony with the results of laboratory investigation and experiment. One must be cautious in closely pushing the deductions from experiments in the laboratory, until the said experiments are abundantly confirmed.

My own experience would claim for convallaria an effect, chiefly as a cardiac regulator and a useful adjunct to digitalis, but by no means can convallaria be said to replace that drug.

THE POSSIBILITY OF ABNORMAL OCULAR CONDITIONS THROUGH THE SYMPATHETIC SYSTEM IMPAIRING THE FUNCTION OF THE UTERUS.

By WILLIAM S. LITTLE, A.M. M.D.,
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During the early stage of development, the uterus and its appendages have not been observed to exhibit any marked influence upon the general system of the female, much less to produce any reflex irritation in an organ so remote as the eye. At puberty, the whole system responds quite markedly to the accomplishment of this most important function of the female career, and reflex irritations are widespread, and the eye is not exempt—especially when the eye itself is the seat of irritation from strain in performing the visual act. Normal action of the uterine function may produce irritation in the eye, which is, of course, the more liable to occur when the uterine action is abnormal. Irritated or diseased conditions of the ovaries, a displaced uterus, a conical os uteri, an inflammatory state of the lining membrane of the uterus or of the tissue proper or of its covering within the abdominal cavity, have their ill effects upon the eye as well as upon the general system and organs less remote than the eye, which effects are exhibited in the eye by pain, by irritation of the retina and nerve, and even may progress to inflammatory conditions; spasm of the eyelids is associated with the eye symptoms. From puberty to the menopause, these conditions may arise, and in cases free from pregnancy.

The uterus in its pregnant state produces unpleasant ocular conditions, varying from mere irritation to inflammatory processes, and the latter not due to albuminuria alone, but to involvement of the optic nerve fibres that may result fatally to sight. Dr. E. G. Loring, of New York City, in a paper in the *Transactions of the American Ophthalmological Society* for 1882, has advised the performance of premature delivery for the prevention of blindness as a result of pregnancy; in one case it has been done at the third month, a former pregnancy having impaired the patient's sight to a

great degree, and the succeeding one impairing vision again and more severely.

After delivery at full term and of normal character, the necessity of a darkened room and the non-use of the eyes is the rule, till the convalescent life of the parturient woman is past. The eye soon regains its power, if not itself subjected to strain in seeing; optical defects that have not manifested themselves before then appear, and their correction is of great value, not only in the accomplishment of the visual act, but freedom from one source of irritation to the system. In difficult labor, and where the tissues of the uterus are torn or placenta retained, the eye is apt to exhibit irritation; even tears of the vaginal wall or region of the perineum have an influence. After miscarriages or abortions the same conditions may exist.

Prof. Förster, of Breslau, has given the name of hysterica kopiopia to the ocular manifestations of disorders of the uterus and its appendages; others have observed and described cases. I read a paper on this subject with cases before the Philadelphia County Medical Society, in March, 1881.

Patients having these symptoms in the eye are apt to judge the eye only at fault; a case recently observed with these symptoms has, for the past six years, been consulting ophthalmic surgeon after ophthalmic surgeon, though advised to consult elsewhere; the result of the examination has not been learned, but she gave symptoms of uterine trouble.

The Bradshaw Lecture delivered before the Royal College of Physicians, during the past year, by E. Long Fox, M.D., F.R.C.P., on The Influence of the Sympathetic on Disease, describes the influence one organ may have on others through the sympathetic, as well as the influence the sympathetic may have on the nervous system and on organs, it being itself diseased. In the former case, he speaks of the hypogastric plexus as affording the most marked illustration. And here it is to be stated, that all sympathetic systems are not equally sensitive in conveying impressions from one organ to another, nor are all organs as sensitive as others in receiving these impressions, nor do all give rise to the same symptoms equally.

It is difficult to say whether these reflex irritations are due to disease of the sympathetic, or whether some organs are more sensitive in receiving or others more powerful in creating such influence. Dr. J. M. Duncan, in one of his clinical lectures given at St. Bartholomew's Hospital, while speaking of the remote or indirect symptoms of the diseases of the uterus or its appendages, asks the following: "Are there no uterine symptoms or disorders or diseases

which are secondary to other diseases, indicative of them or caused by them? Should the uterus and its appendages be looked on as always governing and disturbing, and not itself occasionally governed or disturbed?" The influence that unnecessary strain in performing the visual act has upon the nervous system and upon some organs of the body, through the sympathetic system, is now no new thing. Optical defects more than true disease of the eye produce this influence. The varied forms of headache, cerebral and spinal symptoms, gastric disturbance, and, what I have observed more recently, an influence on the heart's action due to optical defects, are now recognized. Dr. S. Weir Mitchell, of Philadelphia, deserves full credit for his statements as to the influence the eye annoyed with optical defects may have on the nervous system; Prof. Wm. Thomson, M.D., of Philadelphia, being the first to test this plan of treatment on eyes producing such impressions, and it is now one of the most interesting fields in ophthalmic medicine. All persons are not equally affected by these ocular conditions, and slight defects are as productive of trouble as marked ones in some cases.

The purpose of this paper is to show, that the influence the eye has when irritated by optical defects, can be as far-reaching as the uterus and its appendages, and to raise the question of whether relative sterility, as defined by Dr. J. M. Duncan, in his Gulstonian lecture, delivered recently On Sterility in Women, may not be due, in one case at least, to abnormal ocular conditions affecting the uterus and its appendages, through the sympathetic system. For if the uterus can produce effects so widely as it does, it ought to be subject to counter influences, and though the whole question of reflex irritation is dangerous ground in actual diagnosis, and for proposing methods of treatment, it is closely allied with physiological research, and deserves consideration.

The eye has stood the test, better than some other organs of the body, in the question of arriving at the value of reflex irritation as a help to diagnosis.

In the case which I will describe, treatment was undertaken with no knowledge of the relative sterility existing, but only for relief of the eye symptoms, which were believed to be the cause of the headache, spinal irritation, gastric disturbance, and a general hysterical condition. It was only brought to my attention some eighteen months after treatment, when I was informed she had been delivered of a female child, a first and former pregnancy having occurred twelve years before. Relief of conditions recognized at the time she was seen, rapidly followed the correction of the optical defects. Pregnancy having followed the relief of the other reflex symptoms

in this case, leads me to consider the possible connection of sterility in the chain of reflex symptoms, as produced by the ocular conditions in this particular case.

Case.—Mrs. ———, æt. 34, was seen February, 1881, complaining of pain in both eyes; vision defective and more marked of late; had headache before eyes became troublesome, and now more severe; pain shooting down her neck; for some months past subject to gastric symptoms with nausea, had been treated for gastric fever. In August last, had an attack of erysipelas; was living in a malarious district.

R. E. V. $= \frac{5}{\text{LXX}}$; mydriatic V. $= \frac{3}{\text{CC}}$; $+2$ D. $\frown +1$ D. cyl. ax. $90° = \frac{15}{\text{XL}}$.

L. E. V. $= \frac{15}{\text{XXX}}$; mydriatic V. $= \frac{15}{\text{XL}}$; $+0.75$ cyl. ax. $90° = \frac{15}{\text{XV}}$.

She was advised to wear the glasses constantly. Seen March, 1881, one month since treated, stating there was relief from pain in eyes; vision better; less pain in head; nausea still existing; strychnia was given.

I learned nothing further of the case till September, 1882, when her husband called and informed me that she had become perfectly well very soon after I had last seen her, and that a month ago she had been delivered of a female child; this being her second pregnancy, and none having occurred for twelve years; the first child had died; there had been no miscarriages.

HOUSE-PLANTS AND LUNG DISEASE.

By J. M. ANDERS, M.D.

As science develops, popular traditions often become disintegrated or vanish away. In the light of present knowledge there remains little room for doubt of the beneficial influence which house-plants are capable of exerting in the sick chamber, yet some *savants* persistently refuse to believe it. To review all the experiments upon which the foundation of the theory of their utility is based would be foreign to the purpose of the present writing. It seems incumbent, however, to present here a brief summary of some of the most important facts pertaining to the effects of plants on the air of houses, which have been clearly established by my own researches.

First, that plants transpire (exhale) aqueous vapor with great rapidity, the rate having been carefully estimated at one and a quarter ounces by weight per square foot of leaf surface for twelve diurnal hours. Secondly, through this process of transpiration they have the power to increase the humidity of the atmosphere of an apartment to any degree that may be desired by simply regulating the amount of leaf surface. Thirdly, that the vapor emitted by plants is most probably changed and medicated to some extent by passing through the plant, and is presumed to possess greater sanitary value than ordinary humidity. Fourthly, recent experiments by the writer, the results of which have not yet been published, render it highly probable that flowering plants have the power of generating and emitting ozone.

In a paper published by me in the *Philadelphia Medical Times* of May 8, 1880, the theory of their utility in lung affections was further supported by proof of a practical character collected chiefly from personal observation. Attention having been called to the subject, cases were reported from various quarters, strongly corroborating this view. I propose to collect here all the histories thus far reported, as bearing out this idea from a practical standpoint,

in order that the profession may be able to judge more intelligibly as to the value of house-plants as hygienic or therapeutic measures in consumption, etc.

Whether or not we consider the theory of Koch as having been carried to a demonstration, the words of John Locke, uttered long ago, still hold with reference to phthisis, viz., that "prevention is better than cure, and far cheaper." Indeed, it is a question whether in this disease the only cure is not in most cases—I will not say all—prevention. And should the careful observations of Koch be fully confirmed by future investigators, it is much to be feared that all efforts at finding a specific to destroy this parasite within the human body would be wasted on a forlorn hope. How to prevent the development of consumption should be a subject of vital interest to every practitioner of medicine, in view of the great prevalence and incurable nature of the disease, and also on account of the acknowledged fact that half, at least, of all cases are preventable. The family doctor very generally has an opportunity of knowing the inherited tendencies of his patrons, and should he be aware of the presence of predisposition to tubercular disease in a family, it becomes his duty to point out the danger and how to avoid it.

With no intention of underrating the importance of other measures usually recommended by writers for guarding against this dread disease, I wish to present here the evidence obtainable in favor of house-plants as preventive agents.

In the article before referred to are given the results of some practical observations bearing upon the same point, from which I shall have to borrow a brief summary.

A visit was made to thirty florists and gardeners of Philadelphia, of whom "twenty, with ages ranging from twenty-five to eighty years, are strong and vigorous, and have always enjoyed good health. They all work from ten to sixteen hours daily, and have followed this pursuit for from six to sixty years." Two of this number, however, a father and son, gave a marked family history of the disease in question, and have died with the disease after quitting their occupation.

The father, although strongly predisposed to phthisis, followed the occupation of florist from early life up to the age of sixty, and during all those years was in good health. When sixty years of age, while he was assisting at the erection of a church, he met with an accident which injured his ribs and disabled him for work. But a few months later he went into consumption which quickly proved fatal. Now, may not the fact that he was unable to be among his plants have had something to do with his last illness?

The son died at the age of 36 years. He was engaged in gardening from boyhood up to within a year of his death, continually at work among his plants. During all the time he followed this vocation he enjoyed fair health. A short time prior to his death he forsook his calling and took a store in the same city, and almost simultaneously he became a victim to consumption, which caused his death in a short time.

During the spring of 1882, there came under my care a brother of the last patient, whose case has not been reported, giving the following history. He was 36 years of age; had lost his father and two brothers from consumption. He stated that he had followed the occupation of florist and gardener from the age of fifteen years up to about one year previous to my having seen him; that he worked almost continually among his plants from eight to twelve hours daily, and that during this whole period he enjoyed fair health. He now abandoned his former calling, took a small store and dealt only in cut flowers. After pursuing this business for a few months his general health gradually failed, and cough set in, which gradually increased. Being of very careless habits, the patient neglected this cough for a long time, and when he first applied to me the physical signs showed there was extensive softening of the upper lobe of left lung, and slight crepitation at the apex of right one. The future course of the case was typical of phthisis, and terminated fatally about a year later. The fact that these two brothers had followed floriculture for so many years in good health, and so soon after making a change in their occupation they both fell into consumption is, to say the least, very suggestive. The father, who continued his calling as a florist until late in life, escaped the disease until as the result of an accident he was incapacitated for work, when he shared the sad fate of his unfortunate sons. Is it not reasonable to believe that had not these young men deserted their plants they would likewise have escaped the disease, at least so early in life?

A striking example of the value of plants in preventing the development of the disease in question, is recorded by Dr. Ely McClellan, U. S. A., in the *Phila. Med. Times*, Feb. 26, 1881. He says: "For the past three years there has been almost constantly under my observation a case which seems to corroborate the views expressed by Dr. J. M. Anders, in his paper on the *Hygienic and Therapeutic Relations of House-plants.*" E. M., a gentleman thirty years old, who belongs to a family in which there is a marked history of phthisis pulmonalis. His physical appearance would indicate that he might be subject to the disease, but he has as yet escaped its development. "The history of the case involves the families of

both the father and mother. The father, although born of tubercular parents, escaped the disease, but the mother died at comparatively an early age, leaving a family of five children, four of whom have died of consumption. Of these children, three died between the ages of twenty and twenty-five years. One died in his thirty-ninth year, after a long illness, the last two years of which were under my observation. E. M. is the youngest of the family. His life, with the exception of the last eighteen months, has been devoted exclusively to sedentary pursuits. At twenty-three he married, and as he was then engaged in an occupation which required his residence in an isolated locality, for both amusement and occupation his wife began the cultivation of house-plants. She soon became an enthusiast, and a profusion of plants, especially the foliage varieties, accumulated in her house. As they resided in an extremely changeable climate, where during the cold months constant watchfulness was necessary for the preservation of plants, her bed-room and the adjoining sitting-room were arranged for that purpose.

"Before his marriage, E. M. complained of, as he expressed it, a weakness of the chest, and a constant liability to take cold. Since his marriage, with the exception of an occasional ailment, he has seemed a healthy man, and it is but reasonable to attribute his escape from the disease which had destroyed so many of his family to the fact that he lives, and has lived for the past seven years, in apartments well stocked with thrifty plants."

It is now proposed to indicate by illustrative examples the value of house-plants as remedial agents in cases of confirmed phthisis. In the paper heretofore referred to, I recorded two cases in which this method proved very beneficial during the course of this dread malady.

The history of one of these cases, of which I will here give the most prominent points, was received from my friend Dr. Hiram Corson, of Conshohocken, Pa. After stating that phthisis was markedly hereditary with his family and ancestors, he continues: "Thirty years ago, my eldest sister, then above fifty years of age, was reported to her physician, Dr. J. P., a victim of tubercular consumption, to which she would succumb before the coming summer. She was a lover of plants and flowers, and cultivated them indoors and out. The spring saw her again, moving among her plants, and the writer found her confined to the house. Visitors and friends often spoke to her of the impropriety of having so many growing plants in her room, reminding her of the tradition, that they were injurious. Still every spring found her again on her feet in the yard

and garden, nursing her plants, and every winter confined to her room. And thus she lived, year after year, until two years ago, when at the age of eighty-five she passed away. I have seen a few others have plants growing and blooming in their chambers, but never one who so lived among them as did my sister. Winter after winter we looked for her death, the cough, expectoration, and weakness justifying our apprehensions, and yet her eighty-fifth year found her cheerful and happy, living among her plants and enjoying the society of her friends. May we not believe that the vast exhalation from these plants—water purified and medicated by their vital chemistry, prolonged her life?"

The other case which I have recorded is briefly as follows: Mr. W., æt. 35, has been in business as a florist for twenty years, and is among his plants ten hours daily. Phthisis is hereditary in his father's family, and my informant himself (Mr. W.) has long since been pronounced as consumptive by his physician, Dr. S. R. He states, however, that he has always had good health, except simply the annoyance of slight cough and a little expectoration. He is still nursing his plants and enjoying life.

Following the above publication, there appeared in the *Christian Advocate* (by its medical editor) for July 29, 1880, the following history, which, if not fully confirming, is at least suggestive of the theory contained in my paper.

"Two years since there was under my care one whose prolonged cough and repeated severe attacks of bleeding from the lungs gave every promise of a speedy death from consumption. As he rallied from the last attack of bleeding, and was able to crawl about again, in order that he might have the benefit of the tonic action of the sunlight, he was advised to pass several hours daily basking in the sun in the hot-house of a neighboring florist. This he faithfully did during the spring until the weather made it possible for him to spend his time in the park. In addition to this, all the usual measures which are accepted as of value in such conditions were adopted, but the sun-baths (in the green-house) were especially insisted on as of prime importance. The sick man steadily improved. His cough became less troublesome. His strength returned. No further bleeding occurred. At the end of several months he resumed work at his trade, and now for over a year has been apparently well, pursuing a trying avocation without interruption."

The following case occurred in my own practice recently, and has not been published. Miss S., æt. 20, of vito-mental temperament, the eldest of three daughters in a very comfortable family. There is a history of phthisis and scrofulosis in the family ante-

cedents of both the father and the mother; parents, however, both living and enjoying fair health, also the grandparents on the mother's side. At the age of ten our patient had necrosis of femur as the result of a sprain, lasting a year, during which time a few spiculæ of bone were thrown off spontaneously; subsequently the leg kindly healed and gave her no further trouble. She had been a sufferer from atonic dyspepsia for several years, associated with habitual constipation. During the winter prior to her illness, she had been subject to frequent colds on the chest, which, however, were of short duration, and made no impression on her general health. May 1st, she contracted an ordinary cold, and treated it apparently successfully with domestic remedies. About a month later she again caught a severe "cold," but now domestic medication was of no avail, and after trial for a month, the cough meanwhile becoming more and more troublesome, I was consulted. At this period the patient complained greatly of a tickling sensation in the region of the larynx, which she stated was present from the beginning, and gave rise to hacking cough. There was scanty expectoration of mucus, the appetite was poor, and digestion greatly impaired. The physical signs were almost negative; there was slight dulness on percussion over the left apex, and feeble respiratory murmur, and occasional crepitation during inspiration. A change of residence was strongly advised, and she was accordingly sent to the Blue Ridge to live with the family of a friend, under the care of a reputable physician. Here she remained seven weeks. On her return she was found to be much worse in every respect, anæmia pronounced, and greater weakness, and she had lost slightly in weight. The physical signs were vastly more marked. The treatment now consisted of a pill composed of quin. sulph., nux vom , and arsenic, with Scott's emulsion of cod-liver oil. Under this treatment there was a slight gain in flesh and strength up to October 25, 1881. The patient partook freely of milk, and her diet was carefully attended to. The physical signs, however, steadily grew more pronounced, the softening process was already progressing. The digestive organs rather suddenly became greatly deranged, which still further reduced her general strength. Grave fears were entertained lest the approaching winter season should aggravate to a great extent the disease, and compel her to be constantly confined to her room with the usual consequences of such practice. A change to some warmer clime was therefore contemplated, but it was finally decided, between Dr. L. Starr my consultant and myself, that her strength was too feeble to admit of a journey to a southern climate.

November 1st, her general condition was very bad; pulse ranging

from 110 to 120; hectic fever quite marked; great weakness and emaciation. She was able to walk only two or three squares with the most strenuous efforts. The symptoms referable to the larynx were very distressing, the patient complaining greatly of a dryness in that region accompanied by tickling and actual pain, there being undoubted tubercular laryngitis. The voice at times was very hoarse, low, and strained. This was her unfortunate condition November 5th, when it was decided to fill the living and sleeping rooms with thrifty foliage plants. The second story front room was selected, the dimensions being twelve by fifteen feet, and three dozen plants, chiefly of the foliage varieties, were introduced, with an average leaf surface of about four square feet. The apartment was heated by a hot-air furnace. The atmosphere of the room was markedly changed, and rendered strikingly agreeable by the presence of the plants, besides the room being much more cheerful and attractive. Thus she lived almost exclusively among her plants the whole winter season. The temperature was kept at from 68 to 72° Fahr. The internal treatment during her confinement to this room was that usually adopted in like cases. About the first of May the plants were gradually removed; the weather becoming fine, the patient was advised to spend as much time as possible in the open air during fair days. A drive through Fairmount Park formed a part of her daily outdoor recreation. Spring found her not any more reduced in general strength than when she betook herself to her room in the fall. The physical signs, however, showed that the local lesions had advanced to some extent, and a cavity of considerable size had formed in the left lung, while the rest of the lung was studded with tubercle. Meanwhile the right became involved, as evidenced by crepitant râles extending over about one-fourth of the lung. The months of July and August were spent in the country. During these months she had several attacks of diarrhœa, causing rapid emaciation, and telling considerably on her strength. After returning home about the first of September, diarrhœa was continuous in spite of all treatment, weakness and emaciation becoming very marked. During the last week in September the diarrhœa became quite aggravated, carrying off the patient hastily, death occurring October 5th.

Now, as to the effects of the plants on our patient. In the first place, it must be borne in mind that the disease in the present instance had assumed a pronounced form, and was pretty far advanced as regards the local lesions, when this method was adopted, and hence a cure was out of the question, and it was scarcely to be expected that the disease could be even arrested, but the object was to try

and alleviate urgent symptoms, prolong life, and make it as comfortable as possible. These expectations were fully realized. After entering the room the patient at once experienced an agreeable sense of relief, existence becoming more comfortable. It will have been observed, that her general strength underwent no change or diminution during five months of nearly absolute confinement. Perhaps, no better evidence of the happy effects of the plants upon the atmosphere of the room could be adduced than the fact that the patient was frequently heard to declare when in any of the other rooms of the house for a few minutes only, that she felt vastly more uncomfortable than in her own favorite apartment, and would have to return to it.

But to arrive at a correct estimate as to the usefulness of the plants in this patient, we shall have to pass in review their effects upon the various symptoms more in detail. The almost constant laryngeal irritation of which the patient had complained so much, was diminished in a marked degree. The cough was less marked, being less frequent and causing less pain, than before she repaired to this artificial bower, the change being probably due to the happy effect of the plant atmosphere upon the diseased laryngeal and bronchial mucous membranes. The hectic flush to which our patient was a victim, though nearly as well marked, was better borne while in this room. The action upon the circulation was not at first perceptible, but it should be observed, that in the case of the circulation, as with the general strength of the patient, the change for the worse was really imperceptible, when the condition of pulse before and after leaving her room were compared. There can be no doubt, however, but that the greatest service rendered by the plants in this case was the great degree of comfort they brought, apparently, independently of their effects upon individual symptoms, but due to their purifying and freshening the air.

I have here given a number of cases tending to show the value of plants as preventive and remedial agents in phthisis, too few, perhaps, to furnish a basis for definite conclusions, still they seem to me of a sufficient importance to call for more extended observation in this direction. Whether we convert the sick-room into a floral chamber or resort to a neighboring green-house, such a refuge may be looked upon as a miniature health resort, and possesses important advantages over the ordinary health stations. They are within reach of all; and every practising physician is familiar with the fact that a change of climate is out of the question in many instances, for financial or other reasons. Again, as it is well established that change of climate is of no avail, unless the new residence is more or

less permanent, it is well to note that this inexpensive substitute does not entail prolonged separation from home comforts and social ties. It is recommended that the patient should assume the care of the plants, which to most persons becomes a pleasing occupation, besides their cultivation and study are well adapted to relieve mental tension or distressing ennui. During the warm season the patient can obtain the beneficial influence of the plants by their culture of flowers and plants, and spending as much time as possible among them in the open air.

It is not claimed for plants, that they can rise to the position of a specific in this dread disease, but it would seem that they are capable of bringing about an arrest of the disease, or even cure in some instances, with the aid of remedies and the other sanitary precautions employed in such cases, for in looking back at the cases reported, you will observe that in one an apparent cure was effected by the combined action of the sun-baths and plant atmosphere. In two of the others, the disease was controlled to such a degree that life was prolonged almost indefinitely, and made comfortable.

In order to obtain good results from this method, particularly when the living and sleeping-rooms are taken as a refuge for the invalid, the cultivation of the plants, the extent of leaf surface, the size and exposure of the room, ought to be well understood, and receive due attention. The size of the room should not be less than 12 × 20 feet, and when practicable the adjoining room should be included. The living-room should have a southern exposure, so as to admit the sunlight and allow the rays to fall on the leaves for several hours daily. The pots in which the plants are situated should be glazed, which would prevent the formation of mould on them.

As to the amount of plant life. This is a matter of prime importance. And first, in the selection of plants the following rules, elsewhere laid down, should be observed: First, that they have soft, thin leaves; secondly, foliage plants, or those having extensive leaf-surface, are to be preferred; thirdly, those which are highly scented, as the tuberose, etc., should be avoided, because they often give rise to headaches and other unpleasant symptoms.

As a broad rule, it may be stated that a greater proportion of plants is essential in advanced stages, when cavities exist in the lungs, marked hectic fever, or a highly sensitive nervous system. Such a ratio as employed in Miss S.'s case, viz., three dozen thrifty plants having a leaf surface of four square feet each, in a room twelve by twenty feet, would produce an effect suitable in such cases. On the other hand, in the early stages of chronic phthisis,

as well as when cultivated as preventive measures, a somewhat less ratio might suffice. It is important to maintain an equable temperature (from 68 to 74° Fahr.), so that the air of the room may not have a chilling effect, and with reference to what for convenience might be called "indoor climatology," we have it in our power to do this, and in addition, derive great advantage from the medicated vapor given off by the plants. Growing plants, doubtless, have other spheres of applicability of almost equal importance to their value in lung disease, but these cannot be discussed at present writing.

REPORTS

FROM

COUNTY MEDICAL SOCIETIES.

FORM OF COUNTY REPORTS TO THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.[1]

I.—CAUSES WHICH MODIFY THE HEALTH OF THE COUNTY.

1. LOCALITY:

Boundaries of county, and its situation in the State.

Its proximity to large rivers and the lakes; to mountain ranges; their direction and extent.

2. HYDROGRAPHY OR DRAINAGE:

Size and direction of watercourses, and of the dividing ridges, or water-sheds.

Extent of river bottom.

Power and rapidity of streams; danger and frequency of inundation.

Quantity of marshy or springy soil.

Artificial water channels and reservoirs; amount of lockage.

3. TOPOGRAPHY:

Area and mean altitude of county.

Population and their lineage; chief avocations.

Location and size of principal towns.

General character of surface; principal valleys and eminences.

Nature and extent of surface destitute of vegetation, tilled, covered with forest, or in grass.

Agricultural produce; kinds of timber; effects of clearing and of drainage on climate; extent of artificial irrigation.

4. GEOLOGY:

Geological position, actual location, dip, direction, and extent of the different formations.

Character of soil, subsoil, and subjacent rock.

Source and nature of water used for domestic purposes.

Supply of water to towns; kind of pipes used as conduits.

Map with geological features named, and colored agreeably to the order adopted by the State Geologist.[2]

5. METEOROLOGY:

Latitude, longitude, and altitude of observer.

[1] See printed *Transactions*, vol. v. p. 52.

[2] Inclose, by dotted lines with proper marginal references, those sections of the county in which epidemics have prevailed.

[3] Observers for the Franklin Institute, Philadelphia, as well as for the Smithsonian Institution, Washington, reside in a number of the counties, and would furnish all the meteorological information required. See page 16, Part iii. 1858.

Barometric, thermometric, and hygrometric states of the atmosphere for every day in the year, indicating, in columns, the amount in inches of rain, hail, and snow.

II.—MORTUARY TABLES.[1]

1. MORTALITY:
   From fevers; from measles, smallpox, and varioloid.
   From diseases of the lungs and air-passages.
   From diseases of the nervous system.
   From diseases of the organs of nutrition.
   From diseases of the urino-genital organs.
2. CAUSES assigned for death where the number exceeds 10 per cent. of the whole.
3. QUARTERLY TABLES, showing the whole number of deaths of white and of colored persons under 1 year, from 1 to 2, from 2 to 5, from 5 to 10, from 10 to 15, from 15 to 20, and for every decennial period over 20.

III.—PREVALENT DISEASES.[2]

1. EPIDEMICS AND ENDEMICS OF THE YEAR:
   Their origin and march; apparently contagious or not; how affected by race, age, sex, temperament, avocation, circumfusa, ingesta, and the density of population.
2. FEVERS:
   Intermittent and remittent; their frequency as compared with that of former years.
   Typhus and typhoid fevers; smallpox; benefits of vaccination; measles; scarlatina.
3. OTHER DISEASES:
   Observations on their etiology, pathology, and therapeutics.
   Peculiarity of type or tendency.
   Number of cases, and a comparison of it with that of other years.
4. MISCELLANEOUS:
   Medical effects of indigenous plants, and of new remedies.
   Facts of interest in surgery and obstetrics.
   Notices of members deceased during the year.
   List of officers and members.

[1] If, as is to be feared in many counties, the materials for this classification cannot be obtained, the reporter is requested to approximate as closely to it as his means of information will admit.

[2] In describing cases, give the age, sex, condition, and location of patient, season of year, treatment, and termination.

REPORT OF THE ADAMS COUNTY MEDICAL SOCIETY.

The Adams County Medical Society, during the year past, has held its usual number of regular meetings, and one special meeting, for the discussion of Insanity in its Medico-legal Relations. The attendance has been fair at all meetings, and many instructive and interesting subjects have been considered. No new members have been added to the Society. One member has been lost, through the removal from the county of Dr. Robert Horner, one of the founders of the Society and for thirty years a practitioner in Gettysburg.

During the summer and autumn, remittent fever and typhoid fever prevailed to a considerable degree. In many instances the fevers were so blended as to constitute the condition described as typho-malarial fever. The mortality was much less than the average of typhoid fever.

The Board of Examiners have issued one certificate of proficiency, the recipient being Dr. William Cashman, of Bendersville. Although numerous verbal reports of cases of interest have been made, no papers have been submitted for publication in the *Transactions.*

JOSEPH B. SCOTT,
Recording Secretary.

REPORT OF THE ARMSTRONG COUNTY MEDICAL SOCIETY.

From the few returns that were made we find that enteric fever, diphtheria, and pneumonia have prevailed pretty evenly throughout the county, Freeport being comparatively exempt. An epidemic of rubeola of considerable severity is prevailing at this time (May 2d) through the centre of the county with an occasional death.

The abundant water supply of Kittanning mentioned in last year's report as a probable factor in the absence of enteric fever from that locality has not been proof against its entry, as some forty cases occurred in the borough during the autumn with about twenty per cent. of deaths.

At the meetings of this Society, the State Board of Health Bill was discussed fully, and a petition for its adoption was forwarded to the State Legislature. A similar action was taken on the Anatomy Act, the latter modified so as to allow the physicians of the county in which the death occurred first privilege as to the disposal of the body, it to be held subject to their order for two days. The original act was approved by a bare majority, but on reconsideration this amendment was passed unanimously.

Four cases of craniotomy were reported, three by Dr. C. J. Jessop, and one by Dr. T. M. Allison. A case that had been diagnosed as biliary calculus, from the symptoms and signs, proved at the autopsy to be amyloid degeneration of the liver, which was reported by Dr. J. G. Cunningham.

Our prothonotary claims that he has no right to judge of the validity of a diploma, but will register anything that is alleged to be proper, and if action is to be taken, it must occur subsequently.

M. H. ALTER,
W. H. STEWART,
J. E. HALL,
Committee.

REPORT OF THE BEAVER COUNTY MEDICAL SOCIETY.

Our Society is now in a very prosperous condition, numbering some twenty members in good standing, and we have a large attendance at each meeting.

Since our last report we have revised the Constitution and By-Laws, and have changed the regular meetings from quarterly to monthly.

The papers read have been both instructive and interesting, and the subjects for discussion have been participated in by the majority of those present, and on several occasions the debate has become quite animated.

Diphtheria being epidemic in New Brighton, and to some extent in Beaver Falls, the Society devoted considerable time to this subject. Most of the members seemed to favor the tincture of iron and chlorate of potassa treatment, but the writer depends wholly upon pilocarpin and large quantities of whiskey, and spraying the throat with lime-water and carbolic acid.

Dr. Theo. P. Simpson, of Beaver Falls, sends the following: "On Tuesday, May 1, 1883, I attended a young woman in her second confinement, and delivered her of a monstrosity presenting the following points of interest: Female, weight about eleven pounds, well formed and healthy looking, and all internal organs apparently in a normal condition and acting naturally. But the facial features were distorted beyond anything I ever saw or read of in this line. The mouth was well shaped and properly located, but where the nose usually is, the surface was smooth like the cheek; in the centre of the forehead was a double eye, that is, two orbits surrounded by one set of lids and lashes, while overhanging these was a rudimentary somewhat cartilaginous nasal organ, resembling a small boy's penis. This is hollow, but pervious only as far as the frontal bone. Otherwise everything was all right, except that the cord was not more than a foot long. The child was strong, and made desperate efforts to breathe, which it succeeded in doing after I had opened its mouth and cleared away the mucus. Its exertions after an hour or so caused oozing from the cord, which I did not attempt to control; but its struggling continuing, at the request of

the father I gave chloroform and let it pass away easily. I noticed that when winking, its eyelids failed to cover more than half the eye (or eyes) and that the roof of the mouth was naturally formed, there being no cleft palate or hare-lip."

Also a case of idiopathic tetanus, occurring in a boy of twelve, cause unknown, but attributed to a bath in a pond. "This boy died in six days after the beginning of the disease, having been treated during the last three days. Bromide of potassium, recommended by Wood and Bartholow, seemed to have no effect on the convulsions (in forty-five grain doses every hour). Chloral in fifteen grain doses every half hour or hour allowed the boy to get some sleep, but he finally died from apnœa in a spasm occurring after an hour's slumber."

The following is from Dr. J. H. Wilson, of Beaver C. H.: "Beaver, a town of fifteen hundred inhabitants, the county seat, located on the Ohio River, situated on a high plateau one thousand feet above the level of the sea, land sandy and porous, water brought from the hillside back of the town and is perfectly pure. The hills shelter the town from the western and northern winds, so that everything conduces to make the location a very healthy one. There has not been an epidemic in the town within my recollection. Neuralgic, pharyngeal, laryngeal, and pulmonary troubles are the most prevalent diseases. During the past year, and particularly this last winter, rheumatism has prevailed to a greater extent than ever before, and has proven very intractable. My treatment has been fifteen grain doses of soda salicylate every two hours until pain and fever abate, and then three times a day until fully restored. I wrap the affected part in cotton-wool. Scarlet fever has existed sporadically all winter, with but one death. The treatment has been chlorate of potassa, tr. iron, soda carbolate, lemon-juice, hot baths, and cosmoline externally."

During the fall, typhoid fever made its appearance, the majority of the cases coming from Pittsburgh, where it was epidemic. In one case under my care, there was a second relapse, the disease running a regular course after each relapse, ending in recovery. Treatment was quinine, carbolic acid, tr. iodine, and whiskey. In four cases having all the premonitory symptoms of typhoid, the disease was aborted by the use of jaborandi and quinine, as recommended by the editor of the *Virginia Medical Monthly*. In chronic eczema and ulcer of old people, I have found Martin's elastic bandage all that is claimed for it.

New Brighton, Pa., April 25, 1883.

Dear Doctor: The first year of a doctor's practice does not, as a rule, show anything extraordinary, very seldom is it that during this initiatory period any very important or astounding cases come to him for treatment, older and more experienced hands being preferred. Still, the young physician can prove himself worthy of his profession, by the greater or less amount of success he has with minor and old chronic cases, for it is generally among this class that he must fight his first battles. It is generally among this class, liable at all times to baffle him, that he soon finds all that he can attend to.

Thinking that the method of treatment, which I followed out in a couple of such cases, might prove interesting to some of the members of the profession, I will briefly give them.

(1) *Chronic Diarrhœa.*—On the 15th of last May was called to see Miss K., æt. 27. I found her confined to bed, having been troubled with diarrhœa for about three months, and consequently was very weak and emaciated. She had been under the care of another physician for a short time, but receiving no benefit and daily growing weaker, I was called to see her. At this time she was having as many as ten to twelve stools in the twenty-four hours, having to rise five or six times during the night. The stools were of a bright, sometimes dark, yellowish-green color, streaked with blood. Quite a profuse hemorrhage often following a stool, due probably to some ulceration of the lower bowel; sometimes muco-fibrous strips and undigested food would be noticeable. She complained of a great deal of tenesmus and soreness of the lower bowel; the desire to go to stool being distressingly frequent. Her skin had a sallow, dull appearance. Pulse 96; temp. 99.5°; tongue flabby but clean; appetite very poor. I could discover at that time no trouble with the lungs. There was no cough. For the first few days I ordered only tepid water to be thrown into the bowel with a rubber syringe, twice a day; also having injected two or three times during the twenty-four hours a solution of plumbi acet. et morphia, to allay tenesmus, which was distressing at times. I also began at once to regulate her diet, allowing only milk, eggs, and farinaceous food, and at times a little egg-nog. The temperature of the water was gradually raised, until finally it was used as hot as could be borne without pain by the hand immersed in it. The only effect this treatment seemed to have at first was to bring down a great deal of blood and fecal matter, and to lessen somewhat the daily number of stools. Soon only one injection of hot water was used in the morning, and bismuthi subnit. ℥ss doses were given her every four hours during the

day. Stools soon began to present a better color; it was very seldom that any blood was noticed in them. Still she would be bothered a great deal, and especially at night. Finally I had her use at night a suppository containing ext. opii gr. j. This relieved her so much that she did not have to get up at all during the night, a relief she had not experienced for several months. I soon stopped the hot injections, also the bismuth, ordering nit. silver, gr. $\frac{1}{4}$, with opium, gr. ss; this pill to be taken every four hours. The suppositories not being needed now, I stopped them. I also put her on a general tonic of iron, strychnia, phosphoric acid dil., tr. capsicum, syr. limonis. The stools contained no more blood, and began to present their natural color, only numbering two or three a day, and none at night. In the mean time she was gaining strength, having gained fifteen pounds in a month. Her face began to lose its sallow, careworn expression, and to present more the appearance of health. I soon was able to dismiss the case, having her continue the use of the tonic for some little time. At the present day she enjoys good health.

(2) *Chlorotic Nervous Condition.*—Was called January 26, 1883, to see Miss A., æt. 19. At this time she was troubled with great irritability of the stomach; was very anæmic; menstruation defective. Also with these troubles chorea existed to a slight degree, especially when in the presence of strangers did this latter symptom manifest itself. She had scarlet fever about six years ago. Two years ago had a slight attack of chorea. To briefly sum up the urgent symptoms of this case, those she most complained of, would all be included in a case of gastric ulcer; with the exception of the vomiting of blood, this symptom never occurred. Lungs were in a normal condition. No valvular disease of the heart, yet at times some irritability of this organ. I put her on a strictly milk and farinaceous diet, often adding a little lime-water to the milk. Kept her bowels open, and had her take active exercise every day. Also had her take the following tonic: R. Tr. ferri chlor. ♏xx; liq. potassii arsenitis, gtt. iij; glycerini et syr. zingiberis; three times a day. The case under this treatment soon began to improve. It was but a short time till she looked like a different girl. All the nervous irritability disappearing with the other troubles.

Yours, etc.

S. B. POST.

The above are the only responses to postal cards sent to each member of the Society requesting them to send the history of any important case or cases, and a general review of their practice for the past year.

H. S. McCONNEL,

Chairman.

REPORT OF THE BUCKS COUNTY MEDICAL SOCIETY.

At the semi-annual meeting of the Bucks County Medical Society, held at Doylestown, November 22, 1882, the following resolutions were adopted:—

Whereas, In obedience to the inexorable law of nature, by which in humility we recognize the will and the power of Almighty God, the term of life of Dr. Gilbert R. McCoy is ended, and he is laid to sleep in death,

Resolved, That by the death of Dr. Gilbert R. McCoy, the medical profession is called upon to regret the loss of a gentleman whose professional life was distinguished by courtesy and kindness, uniformly exhibited to its members, and the Bucks County Medical Society loses a generous, reliable, and highly esteemed friend.

Resolved, That in his career as a physician, his nobleness of character, gentleness of disposition, and sympathetic kindness of heart, as well as his superior learning and fidelity, rightfully insured to him the success he attained, and fondly endeared him to the many to whom in sickness and suffering he so generously and helpfully administered

Resolved, That in his calling as a citizen, he developed the true characteristics of a conscientious and honest man, and won for himself an honorable standing in this community.

Resolved, That the members of this Society do tender to the family of Dr. Gilbert R. McCoy, condolence and sympathy in their sad bereavement.

Resolved, That these resolutions be recorded in our minutes, and be published, and that a copy be presented to the family of the deceased.

F. SWARTSLANDER,
JOSEPH FOULKE,
JOSEPH B. WALTER,
Committee.

The following narrative of the life of Dr. McCoy was taken from the *Bucks County Intelligencer*:—

Dr. Gilbert R. McCoy, whose death in Doylestown, on the 7th of November, 1882, in his 67th year, was briefly mentioned in the last issue of the *Intelligencer*, was the son of Anthony McCoy, of Northampton County. His mother was a daughter of Gilbert Rodman, of Bensalem. She died when her son was very young. His early life was spent at his grandfather's and under the special care of his aunt Margaret, who afterwards became the wife of Dr. Charles

H. Mathews, of Doylestown. In his youth he was sent to Doylestown school, and afterwards to Princeton College, where he graduated in 1837. After that he studied medicine under Professor Horner, in Philadelphia, and received a diploma from the University of Pennsylvania in 1840. He settled as a physician at Norristown, and remained there until about the time of his marriage, in the early part of 1846. He married Maria, daughter of Dr. George W. Thomas, of Norristown, and removed to Newtown Square, Delaware County. In 1849, upon the death of Dr. Mathews, he removed to Doylestown, where he resided and worked until the time of his death. His wife and two children survive him, one of them is the wife of the Hon. Richard Watson; the other, William, is a young man just of age..

Dr. McCoy enjoyed the highest esteem of the community in which he lived. He was a skilled and trusted physician, a man of quiet manner and cool judgment, not governed by impulse, but rather by slow and deliberate conviction; a conscientious and consistent Christian gentleman. He was a member of St. Paul's Episcopal Church, and was one of the vestrymen at the time of his death.

JOSEPH FOULKE, M.D.,
Secretary.

REPORT OF THE CHESTER COUNTY MEDICAL SOCIETY.

During the past year three have died who had formerly been active and earnest workers in our Society; but who in later years had entirely severed their connection with it. These were Dr. Samuel H. Harry, of Ercildown; Dr. Alexander R. Gaston, of West Brandywine, who had been President of the Society in 1857; and Dr Reuben H. Smith, who practised several years in Media, Delaware County, and as surgeon in the army; but who spent the later years of his life and died in West Chester. We have also to record the death of one of our prominent active members.

WILLIAM B. BRINTON, M.D., 1842–1883.

Death has again invaded the ranks of the Chester County Medical Society. But little more than a year ago, Dr. John B. Brinton, one of the founders of this Society, and a constant and active member, was taken from us, after having spent a long and useful life in the profession. And now we deplore the death of his son, Dr. William B. Brinton, one of our most efficient members, who has been called away in the very prime of manhood, falling by the wayside with the bloom of health still resting upon his cheek, and who, with his usual energy and activity had, up to within a few days of his death, been attending to the duties of a large practice. He was suddenly seized with acute Bright's disease on Saturday, March 2, 1883, and on Wednesday morning, March 7th, died from uræmic poisoning.

Dr. William Bowen Brinton, eldest son of Dr. John Bowen and Eleanor Maclay Brinton, was born in West Chester, Chester County, Pa., on November 30, 1842, and was, therefore, at the time of his death, in the forty-first year of his age. He was liberally educated at the West Chester Academy, at that time under the charge of that well-known educator, William F. Wyers; studied medicine under the preceptorship of his distinguished father, and graduated at the University of Pennsylvania in 1863. On the 14th day of March of the same year he entered the army as an assistant surgeon in the 33d Regiment Pennsylvania Reserves. On May 3, 1864, he was promoted to the rank of surgeon in the 184th Regiment Infantry, Pennsylvania Volunteers. November 23d of the same year Major-General Hancock appointed him surgeon-in-charge of the field hospital of the 2d Division, 2d Corps, of the Army of the

Potomac. This position he held until the close of the war, and was mustered out with his division on the 15th of July, 1865. During his military service he was confined principally to the Army of the Potomac, although for a short time he was on hospital duty in Philadelphia and Washington. After he retired from service in the army he returned to West Chester, and engaged in the practice of his profession. By his skill, energy, and perseverance, and his courteous and gentlemanly bearing, he soon won the confidence of the people, and built up a large practice.

He was universally respected by the members of his profession, who appreciated his skill and knowledge as a physician, and his integrity and character as a man. He was a student and a thinker, and loved his profession; and, by his untiring earnestness in its pursuits, had climbed high in his attainments therein, being thorough in all its departments. But his favorite branch was surgery, in which he had won an enviable reputation. He took a deep interest in the Medical Society of Chester County, and was always present at its meetings, unless circumstances rendered his absence unavoidable. He was independent in thought and decided in character; and, in debate, was clear and forcible. Although liberal in his views, he never allowed himself to be carried away by plausible theories.

Dr. Brinton married Ida P., eldest daughter of Hon. J. Smith Futhey, President Judge of the Courts of Chester County, on February 1, 1871, who, with two interesting boys, mourn the loss of a kind, affectionate, and devoted husband and father.

The doctor took a lively interest in all that pertained to the welfare of the community. For several years he was a member of the Board of Trustees of the State Normal School at West Chester, was President of the Chester County Medical Society, physician to the County Prison, and resident physician of the Pennsylvania Railroad Company; was elected a member of the Borough Council at the last election. He was a vestryman in the Episcopal Church at West Chester, and was one of the active members of that church.

His warm-hearted nature drew to him a large circle of friends, with whom he took great pleasure in associating in his hours of relaxation; and in all the walks of life a hearty respect was manifested for him, because he was a true man, worthy of the confidence of those who knew him.

In behalf of the poor he was ever watchful that none should lack medical care; and to such patients he gave his professional services with that pleasure and zeal peculiar to his nature. How little we can write of the life of a true physician, for after all his greatest work and most noble deeds are performed in the silent hours of the night, and are frequently known only to himself and those dependent upon him.

Dr. Brinton was interred in the Oaklands Cemetery, near West Chester, where his grave will be looked upon as the last resting place of one sincerely loved while living, and whose memory will be cherished by a whole community.

ROBERT B. CAREY,
Chairman.

REPORT OF THE CLEARFIELD COUNTY MEDICAL SOCIETY.

This Society has to report itself in a healthy condition. Quarterly meetings are held, and the attendance during the last year has been larger than usual. Greater interest is being manifested, especially by the young members, and more care is exercised to make correct observations in collecting data for reports. No wide-spread epidemic has occurred, but influenza, scarlatina, diphtheria, typhoid fever, and rheumatism have been present at different times in various parts of the county. Our mining districts are the chief source of cases in surgery, and have been very prolific; fractures predominating.

At the summer meeting of the Society, G. M. Whittier presented, in written form, an exhaustive review of thirty-three recorded cases of typhoid fever, that had occurred in his practice from August, 1881, to April, 1882. He preferred the name pythogenic fever; though from the frequency of its occurrence during the fall of the year, in Houtzdale and its vicinity, where he practises, autumnal fever would seem quite appropriate. As soon as the late summer and early autumn rains begin, cases appear, and there are more or less of them until the cold weather is well advanced. Fever occurred after December 1, 1881, but with each rainy spell, when the wells became filled with surface water, cases were noted. No new theory was advanced in the report, it was simply the summary of careful observations recorded.

Certain privies, by apparently vitiating drinking water, seemed to play an important part as cause in a number of instances. Four of his cases, and two attended by other physicians, obtained their drinking water from the same spring, which was so situated as to receive the surface wash from several families. The accumulation of animal matter upon the surface during the preceding dry months, more or less of which was carried by the first rain into the water supply, was believed to be the cause of these cases. In nine cases, treated some years previous, he recalled similar circumstances. The water supply was a well on a low level, and every rain filled it up with surface water, which drained from several houses and a much-travelled highway.

Two of his recorded cases occurred in a family where the hired girl habitually threw the worn-out dishcloth into the drain. The drain soon became choked, and all the slops stood and soaked into the earth within a few feet of the well. In another instance, an Irish family, and an extremely filthy lot, constantly threw all slops out at the back door. Just by the back door was the well, and the slops being thrown to its curb, the inference was, that the water was largely benefited in this way. Nearly all of the baker's dozen of children had typhoid fever. A family living in the next house, and using the same water, were nearly all attacked. In another family, also using this water, the wife had typhoid fever; the husband escaping, as was thought, because he had had this fever some years before.

Epistaxis occurred in the majority of cases, and in one so profuse as to require active treatment. This symptom was considered as of considerable diagnostic value. Hemorrhage from the bowel occurred only in one case, and it was very slight. Diarrhœa was present in all the cases. Cathartics, administered early in the disease, always acted with undue energy. The yellow color of the evacuation was frequently remarked both by himself and the nurses. The peculiar expression of the countenance he thought very striking. The facial muscles seem to be in a semi-paralytic condition, and when to this is added the dusky hue attending this disease, the appearance is quite diagnostic.

A dicrotic pulse, in which the finger is struck twice at each pulsation, was observed in many cases. In most of them it was readily made out, but in some, considerable care was required to detect it, even where it undoubtedly existed. Its significance as pointing out the asthenic character of the disease was considered important. An intermittent pulse occurred in several cases, which, at first, was thought to be due to the use of digitalis, but subsequently was noted in cases where this drug had not been administered. Whether it occurs in typhoid fever with sufficient frequence to be called a symptom he did not know. The authors he consulted on the subject made no mention of it. It was due, however, he believed, rather to a weak and flabby condition of the heart muscle than to nervous influence, as he had seen intimated by some writer in a medical journal.

In one case there was a retarded pulse, thirty-six beats per minute, due to extreme prostration, and in this case the good effect of large doses of stimulants was striking. As a rule a pulse below the normal, if not too low, marked the turning point of the disease toward recovery. In two fatal cases the pulse went up to one

hundred and thirty and beyond. The danger to life seemed, in looking over the record, to be in proportion to the height of temperature, and the value of the thermometer can hardly be overestimated.

Bronchitis was a common occurrence. Relapse, due to indiscretion, occurred in two cases.

In treatment, proper hygienic regulations are of the utmost importance. Milk, Dr. Whittier is convinced, should be insisted on for diet, one or two quarts daily, unless an idiosyncrasy exist, or other food can be readily taken. Lime-water may be added, or pepsin, lactopepsin, pancreatine, if the milk pass from the bowel undigested. Beef-tea and beef essence soon created disgust in patients, and very little confidence was felt in its nourishing qualities. Patients want something to take regularly, to depend on, and it is the part of discretion to gratify them as well as to give the nurse something to do.

In mild cases dilute hydrochloric acid or spirit of nitrous ether and water answered very well.

When the temperature went above 103° active measures were always adopted. A sponge bath, used frequently enough to keep the fever below this point, was often resorted to. Where a temperature of 104° or 105° was found, powdered digitalis, five to ten grains during the night, with thirty to forty grains of quinine in the morning, brought down the fever materially the following evening. In some cases, this was resorted to several times during the course of the disease. No condition of the system deters him from prescribing large doses of quinine for high temperature. To distribute the administration of thirty or forty grains over a period of twenty-four hours is futile; give it at one dose or within an hour. A little milk does as well as anything to administer it in.

Watchfulness was treated with full doses of morphia, or in some cases chloral and potassium bromide.

Diarrhœa was controlled by opium, bismuth, and lead in combination; though, unless it exceeded three evacuations daily, no interference was deemed necessary. In three cases marked diarrhœa was well controlled by silver nitrate and opium in pill form, and enemata of starch and laudanum. The full effect of the opium was maintained. Where the fever was protracted, apparently from continued ulceration in the intestine, silver nitrate and opium did well in some cases, but not in all.

Tr. belladonna, in thirty-drop doses every three hours, was most effective for the profuse sweating late in the disease.

When the tongue was dry and the bowels tympanitic, turpentine was exhibited internally and externally.

The lungs were closely watched, and the first symptom of bronchitis treated promptly.

The condition of the circulation, as regards the use of alcohol, is important. It is strongly indicated when the pulse is above one hundred and twenty, or when it is weak, or intermittent. The physician should always know precisely how much is given in each twenty-four hours that he may judge of the effect. When in doubt always stimulate. The carbonate of ammonia often seemed to answer a good purpose. In mild cases no stimulants were administered.

Month.	Male.	Female.	Under 14 years.	Over 14 years.	No. of cases.	Recovery.	Death.	Remarks.
August,	1	1	0	2	2	2	0	
September,	2	3	2	3	5	5	0	
October,	7	2	2	7	9	9	0	
November,	6	1	5	2	7	6	1	Exhaustion.
December,	1	0	1	0	0	1	0	
January,	3	2	3	2	5	4	1	Exhaustion.
February,	1	1	1	1	2	2	0	
March,	1	1	1	1	2	1	1	Continued improper feeding.
	22	11	15	18	32	30	3	

At the April meeting I read the following synopsis of cases of granular or fibroid degeneration of the kidneys, collected during the year from my practice at Clearfield :—

Case I.—Mrs. O., aged sixty, the mother of twelve children, was first visited April 1, 1882. She was a large, rather stout, and healthy looking woman, had always enjoyed moderately good health. Latterly she has had an asthmatic cough. She had headache, some nausea, marked dyspnœa, and excited action of the heart. At first her symptoms were thought to be due to an attack of indigestion. Medicine prescribed for this produced only more nausea, and increased her general distress. On inquiry, it was found that she had for some time passed an increased quantity of urine, but latterly not so much. The exact amount was found to be less than one pint in twenty-four hours. On testing a specimen, plenty of albumen was found and granular casts. The administration of non-stimulating diuretics and hydrogogue cathartics caused general amelioration of her symptoms. The improvement, however, was brief; no endo- or pericarditis was discovered. The heart seemed hypertrophied; its action was constantly tumultuous. Repeated examinations of the urine showed decreased quantity, albumen and granular cysts. No dropsical effusion was present. She fell

into coma the morning of the 17th of the same month, and died in the evening. No autopsy.

Case II.—Mr. W., aged thirty-four years, has a wife and three children; a laborer; first seen May 23, 1882. The fall previous he had an attack of fulness of the head, vertigo, with partial paralysis of the arms and legs. Sensation and motion fully returned in a week. A few weeks later the same kind of an attack occurred, and symptoms continued about the same length of time. His health previous to this had been good, except that he had had some asthma. Since then he has been feeble as to general strength, legs weak, passes water in large quantity frequently, voids it occasionally during sleep; some haziness of vision; heart hypertrophied; tongue coated; no appetite; constipation; pulse seventy-two per minute; urine acid, sp. gr. 1016, contains a small but positive quantity of albumen; microscope shows a hyaline cast, a little epithelium, and a few oil globules.

June 6. Symptoms all improved, but is still breathing rather short and labored; passes nearly one gallon of urine in twenty-four hours; does not void urine during sleep; sight much better; pulse seventy-two beats per minute; urine, sp. gr. 1016, acid, contains a small quantity of albumen, and some granular casts.

28*th*. Breathing markedly improved; heart quiet; passes five pints of urine in twenty-four hours; sp. gr. 1018, acid, more albumen than before, contains also a few granular casts, some epithelium and fat cells.

July 12. Does not sleep so well; heart a little excited; has good control of bladder; general condition about the same; passes four and a half pints of urine in twenty-four hours; sp. gr. 1022, acid, larger amounts of albumen, more granular casts; sight good, can work nearly all day; no numbness; good use of legs; did not come to my office any more. I learned that he died December 28, 1882; mode of death unknown.

Case III.—Mrs. S., aged sixty years, the mother of four children. Had been out of health somewhat for several years, was treated at different times, by different physicians, for a variety of complaints; the disease being always rather indefinite. Latterly she developed symptoms from which her physician diagnosed cancer of the pyloric orifice of stomach. I saw her only at the autopsy, which I performed. A scirrhus carcinoma was found at the point indicated. I found also, what had not been suspected during life, that the kidneys were in a well-advanced stage of granular degeneration. The urine found in the bladder contained albumen in large quantity, and a few granular casts. The surface of both kidneys was markedly

granular, and the capsules adherent. There was no contraction, but a section under the microscope showed increased connective tissue and well-defined bands of fibrous tissue. There was fatty infiltration of the liver. The heart was not hypertrophied.

Case IV.—Mr. L., aged sixty-two years, brewer by occupation, was seen December 30, 1882. During the last few years he has had irregular attacks of rheumatism, affecting wrists, hands, ankles, and feet. He is a large, fat man; has always lived well and consumed much beer. Latterly has had more or less bronchitis, with a constant wheezing cough. A month since an abscess formed in his left ear, pus is still discharged from the external meatus. Heart's action rather feeble, no valvular lesion discovered; no trouble with joints now; says he feels better than he has for a year. But he is thirsty, drinks a great deal, and passes a large quantity of urine; is losing flesh; appetite good; bowels rather constipated; liver enlarged; urine acid, sp. gr. 1032, contains plenty of sugar, albumen, and both granular and hyaline casts; passes nine pints of urine in twenty-four hours.

January 31. Feeling better in every way; thirst less; urine, sp. gr. 1030, contains both sugar and albumen in decided quantity, and granular casts; passes six pints of urine in twenty-four hours.

February 3. Had an attack of acute catarrh of stomach, attended with a good deal of vertigo.

8*th*. Had an attack of apoplexy in the morning, and died during the afternoon. The autopsy showed the liver and spleen very markedly enlarged and full of blood; the former somewhat infiltrated with fat. Both kidneys, imbedded in a great quantity of fat, were large and pale. The left measured five and the right five and a half inches in length; the capsules not very adherent; both were traversed by lines of contraction; there was considerable deposit of fat about the infundibuli. The microscope showed general fatty infiltration, together with well-defined bands of fibro-nucleated tissue. The aorta was markedly atheromatous. The case was one of diabetes rather than Bright's disease of kidneys, and the enlarged liver, with its fatty infiltration as well as that of the kidneys, was no doubt due to that cause. But it nevertheless afforded a good illustration of fatty kidneys undergoing granular or fibroid degeneration.

Case V.—Mrs. T., aged fifty-three years, the mother of four children, consulted me in December 28, 1882. She complained of pain in her stomach after eating; she was constipated, and had marked palpitation at the abdominal aorta. Two years before she was the subject of an ovariotomy, from which she made a prompt

and satisfactory recovery. She now feared another tumor was developing, and declared she could feel it just below the umbilicus. An examination, however, showed it to be the pulsation of the aorta in front of the projecting curve of the lumbar vertebræ. Stomach was tender; heart irritable, and tricuspid valve a little insufficient. The disturbance was regarded as due to indigestion.

Feb. 12. I was called to see her, and found her vomiting. She said she had vomited every morning for some time; latterly several times a day, and always some hours after eating, when the stomach was empty.

The vomited matter was not especially sour, sometimes not so at all, but often offensive. Her heart was acting irregularly. There was a murmur which seemed to be from the tricuspid valves. The liver was very much enlarged. Her breath was short, and she was in great distress. Pericarditis seemed to be developing. She said she passed only a small quantity of urine. A specimen showed sp. gr. 1020, albumen $\frac{1}{3}$, with many large granular casts.

15*th*. Continued dyspnœa and vomiting. Some œdema of legs; much tympanitis and burning in stomach and bowels. She says the vomited matter tastes like urine; not sour or bitter. Has great thirst, cannot lay down, and is sleepless. Quantity of urine small.

16*th*. Slept six hours during the night; less dyspnœa; passed a larger quantity of urine to-day. Heart quieter, no murmur. Increased area of dulness. Apex beat higher and farther to the left than normal, and sounds of heart rather distant.

Urine acid, sp. gr. 1020, albumen $\frac{1}{4}$, no sugar, granular casts, crystals of uric acid and urate of soda.

18*th*. Quantity of urine in last twenty-four hours almost doubled, twenty-five ounces; reaction acid, sp. gr. 1018, albumen $\frac{1}{4}$, granular and hyaline casts. Slept well last night, and is feeling better.

20*th*. Worse. Increased disturbance of heart; urine fourteen ounces for last twenty-four hours, albumen $\frac{1}{3}$ or more, and plenty of granular casts; ascites and œdema of limbs present and increasing. The patient grew rapidly worse; urine passed in twenty-four hours from eight to twelve ounces; marked bronchitis came on; much blood was expectorated. There was general anasarca. The intellect remained clear; no disturbance of vision. The patient died exhausted March 6th. The autopsy showed general anasarca, with effusion into the peritoneal and pleural and pericardial cavities, the latter not large. There was some slight indication of pericarditis, marked endocarditis. Insufficiency of tricuspid valves. Heart hypertrophied. Liver much enlarged from venous congestion. Lungs engorged with blood. Kidneys small and contracted. Capsules not

very adherent. One measured two and a half, the other three inches in length. The microscope showed the cortical as well as pyramidal portion of both kidneys largely occupied by a fibro-nucleated tissue. The tubular structure was almost entirely destroyed.

These cases were presented as illustrating the more usual symptoms of fibroid degeneration of the kidneys. One had disturbance of vision, vertigo, and threatened apoplexy. Three had bronchitis, and three were more or less asthmatic. Hypertrophy of the heart occurred in three. Endocarditis with slight pericarditis in one. Vomiting and gastric disturbance was significant of advanced disease in two. Dropsical effusion was present only in one instance. In general the history was of increased and then diminished quantity of urine. The more diagnostic symptom was the continued presence in the urine of albumen, with granular casts, or hyaline casts, or both. Three autopsies were made and microscopical sections showed the characteristic development of fibro-nucleated tissue in the kidneys. Two died in coma, one from exhaustion, one in apoplexy, and one unknown.

In age, two were sixty, one sixty-two, one fifty-three, and one thirty-four.

H. B. VAN VALZAH,
Committee.

REPORT OF THE COLUMBIA COUNTY MEDICAL SOCIETY.

Our society has held regular meetings during the year; we now meet bi-monthly instead of quarterly, as heretofore; the attendance is somewhat better than last year. We have fifteen members, which is just one-half the number of regular physicians practising in the county. Dr. C. S. Harder, of Bloomsburg, died during the year. No general epidemic has prevailed during the year.

I am under obligations to Mr. Wm. G. Yetter of this place, for the table of rainfall appended for the year ending April 30, 1883.

Rainfall at Catawissa.

	Inches.		Inches.
May, 1882 . .	5.69	November, 1882 . .	1.19
June, " . .	4.15	December, " . .	.72
July, " . .	3.51	January, 1883 . .	3.35
August, " . .	4.39	February, " . .	2.24
September, " . .	3.38	March, " . .	2.54
October, " . .	1.58	April, " . .	2.94
Total			35.68

Scarlatina prevailed to a considerable extent in Catawissa during the winter; the cases were generally of a mild type, there being but two fatal cases; neither of these occurred in my practice, hence I cannot state the cause or mode of death. At present we are having an endemic of rubeola, quite extensive in its range, the cases are characterized simply by the ordinary symptoms. Diphtheria has prevailed only in isolated cases and of a mild form. Pneumonia has been rather prevalent during the winter and spring, though the fatality has been very small. Typhoid fever has not been more common than usual, there being so far as I am informed but a few sporadic cases. I have had in my practice, however, an exception to the above statement, that I consider sufficiently anomalous and important to incorporate in this report. Eleven cases of typhoid fever in one family.

Mr. H.'s family consisted of himself and wife, and twelve children, the oldest a girl aged eighteen years, the youngest a boy aged eight months. The farm was located on a hill several hundred feet

above the level of the river, the buildings being about a half mile from the river, the surroundings were apparently favorable to health, and the family had generally been healthy.

Etiology.—The cause of the attack in these cases is involved in uncertainty. Mrs. H., who was the first taken sick, had attended the funeral of a cousin several miles away, who had died of the disease about two months prior to the time she was taken sick; the probability of her having received the seeds of the disease so long before seems small, though I think not improbable. The only other source of infection that enters my mind is the drinking water. The well is located near the out-kitchen, the ground above the well being flat so that it is possible that surface water may find its way into the well, though as to the cause of the development of typhoid germs in this manner I cannot explain. Mrs. H., aged 40, was taken sick on December 22; I was called to see her on the 24th; found her with fever, having been taken with a chill; she was also suffering with severe cephalalgia, aching of limbs, etc. My first impression was that the case was of a malarial character; soon, however, typhoid symptoms manifested themselves, and at my third or fourth visit I diagnosed it as undoubtedly such. The attacks ran the ordinary course, though for several days her condition was critical; she was confined to her bed about five weeks.

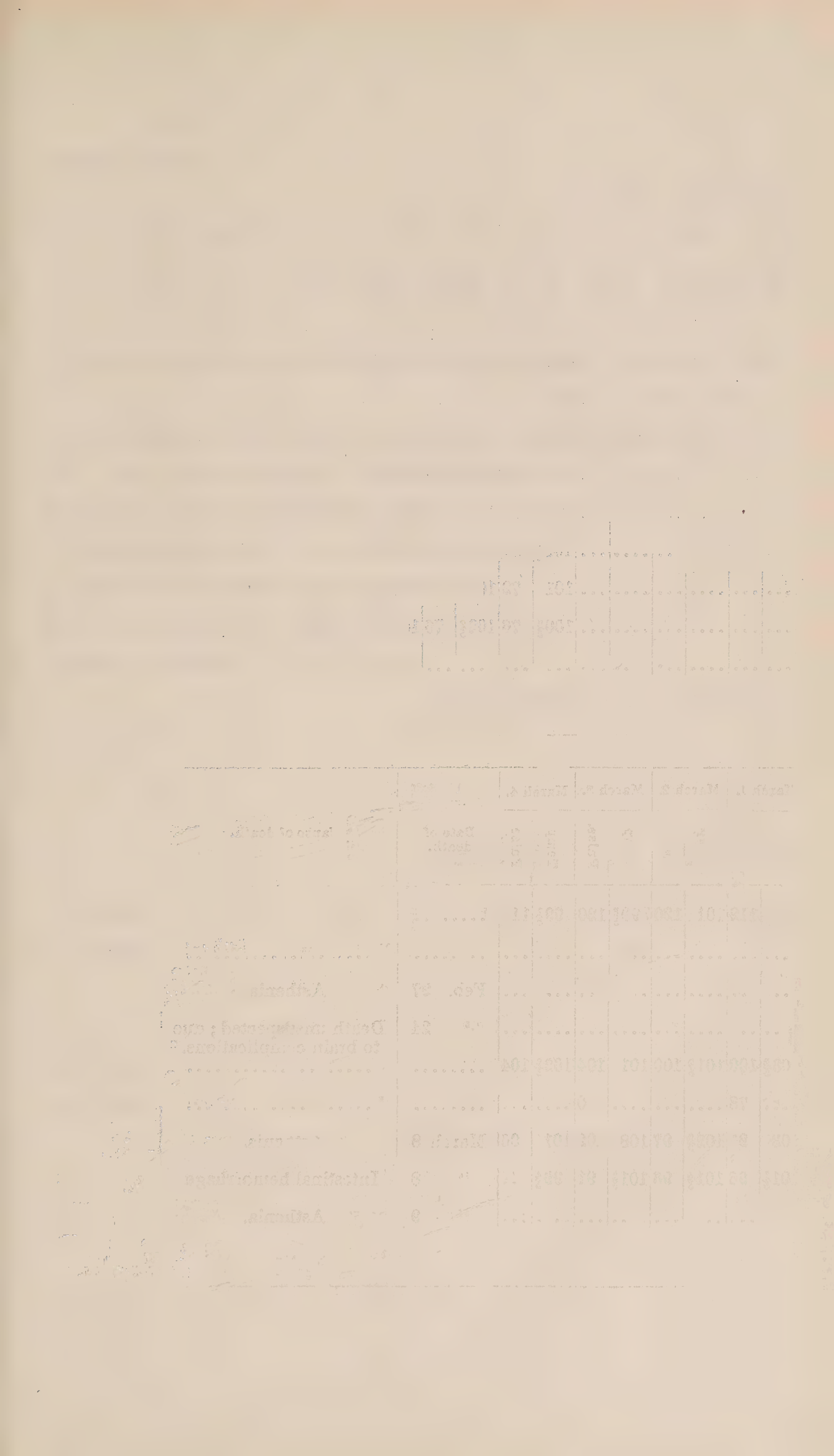
I will refer to a few prominent features of the cases, and give a brief outline of the treatment, to which I will add a daily record of the temperature and pulse.

The attack in nearly all was ushered in by a well-marked chill, generally preceded for several days by prodromic symptoms, after the occurrence of the chill they took to the bed in a greatly prostrated condition, and exhibited evidences of great adynamia; the extreme pallor, and in some of the cases, the purplish or livid aspect of the skin indicated the virulence of the typhoid poison.

Diarrhœa was present in all but one or two cases, most of them requiring constant attention. Epistaxis occurred in every case. Intestinal hemorrhage occurred in one case. Hypostatic congestion of the lungs occurred in a number of the cases, causing considerable cough; well-marked pneumonitis in two.

Delirium of a violent character was present in four cases; in most of the others simply a mild type, as evidenced by a wandering of the mind, etc.

By way of prophylaxis I kept the rooms as well ventilated as possible under the circumstances; the rooms being small, and two and three patients in a room, it could not be done satisfactorily; the atmosphere was kept charged with carbolic acid. The dis-



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Record of Temperature and Pulse.

	Age.	Date of attack.	Feb. 5.		Feb. 6.		Feb. 7.		Feb. 8.		Feb. 9.		Feb. 12.		Feb. 14.		Feb. 15.		Feb. 16.		Feb. 17.		Feb. 18.		Feb. 19.		Feb. 20.		Feb. 22.		Feb. 23.	
			Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.
Fannie H.	13	Feb. 3	$102\frac{2}{5}$	112	$101\frac{1}{5}$	100	102	104	$101\frac{3}{5}$	100	$99\frac{1}{2}$	96	101	104	$99\frac{2}{5}$	100	102	94	$102\frac{4}{5}$	100	$99\frac{1}{5}$	97	99	102	$100\frac{2}{5}$	92	$99\frac{3}{5}$	92	$99\frac{3}{5}$	95	99	90
Johnie,	5	" 3	104	136	....	124	102	124	101	120	$101\frac{2}{5}$	112	....	90	....	88	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ettie,	11	" 6	....	....	....	....	103	120	$102\frac{2}{5}$	104	101	96	103	104	$101\frac{1}{5}$	108	103	112	$103\frac{2}{5}$	....	$103\frac{1}{5}$	130	$103\frac{3}{5}$	115	$101\frac{1}{5}$	122	$104\frac{3}{5}$	....	$103\frac{3}{5}$	140	$103\frac{3}{5}$	....
Dannie,	8	" 9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$102\frac{3}{5}$	106	102	100	$102\frac{3}{5}$	112	$101\frac{3}{5}$	100	105	100	....	112	....	108
Sadie,	16	" 11	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$99\frac{3}{5}$	84	102	90	$101\frac{1}{5}$	82	$99\frac{1}{5}$	85	101	80	102	112	$100\frac{2}{5}$	88
Willie,	14	" 12	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$101\frac{4}{5}$	80	98	80	99	70	99	70	$101\frac{3}{5}$	84	$98\frac{4}{5}$	76	$96\frac{2}{5}$	79
Daniel,	43	" 13	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	101	72	$100\frac{2}{5}$	72	$103\frac{2}{5}$	75	$102\frac{3}{5}$	72	$103\frac{3}{5}$	96	$103\frac{3}{5}$	84	$104\frac{2}{5}$	92
Alice,	18	" 14	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$100\frac{2}{5}$	76	$102\frac{2}{5}$	76	$101\frac{1}{5}$	72	$102\frac{1}{5}$	74	$102\frac{4}{5}$	76	$102\frac{4}{5}$	75	105	82
Jane,	6	" 16	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	128	100	114	$100\frac{2}{5}$	100
Dilly,	7	" 24	Mild case; no regular record kept. Confined to bed about five weeks. Recovered.																													

	Age.	Date of attack.	Feb. 24.		Feb. 25.		Feb. 26.		Feb. 27.		Feb. 28.		March 1.		March 2.		March 3.		March 4.		Date of death.	Cause of death.	
			Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.	Temp.	Pulse.			
Fannie H.	13	Feb. 3	98	95	$100\frac{2}{5}$	110	99	100	$100\frac{2}{5}$	108	$99\frac{1}{5}$	124	$99\frac{3}{5}$	112	101	120	$99\frac{3}{5}$	120	$99\frac{1}{5}$	112	.....	.....	Still sick.
Johnie,	5	" 3	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	.....	Recovered.
Ettie,	11	" 6	$102\frac{3}{5}$	160	100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	Feb. 27	Asthenia.	
Dannie,	8	" 9	99	96	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	" 24	Death unsuspected; due to brain complications.	
Sadie,	16	" 11	$101\frac{2}{5}$	92	$100\frac{4}{5}$	97	$103\frac{1}{5}$	98	102	102	$102\frac{2}{5}$	100	$103\frac{2}{5}$	100	$101\frac{2}{5}$	100	101	104	$102\frac{2}{5}$	104	.....	.....	Recovered.
Willie,	14	" 12	97	62	96	60	97	60	97	78	....	78	....	78	....	....	....	90	....	....	.....	.....	Recovered.
Daniel,	43	" 13	$101\frac{3}{5}$	92	$103\frac{1}{5}$	98	$102\frac{2}{5}$	95	$103\frac{3}{5}$	91	103	92	103	95	$102\frac{2}{5}$	97	$108\frac{3}{5}$	102	101	96	March 8	Asthenia.	
Alice,	18	" 14	$102\frac{3}{5}$	86	$99\frac{4}{5}$	84	$102\frac{1}{5}$	87	$102\frac{2}{5}$	84	....	....	$101\frac{1}{5}$	96	$101\frac{4}{5}$	96	$101\frac{2}{5}$	91	$99\frac{4}{5}$	....	" 8	Intestinal hemorrhage.	
Jane,	6	" 16	101	116	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	" 9	Asthenia.	
Dilly,	7	" 24																					

charges from the bowels were disinfected by the free use of sulphate of iron. In this connection I wish to remark that of the large number of attendants that were in the house at different times, and some of them for several days, all escaped the disease.

Treatment.—The treatment was antipyretic, tonic, nourishing, and stimulating in its character. The fl. ex. of jaborandi was tried in two of the cases, with the view of cutting short the attacks; in both cases it produced profuse sweating, and appeared to hold the fever in abeyance for two or three days; both, however, became severe and proved fatal. Quinine was administered in antipyretic doses in four cases, but without apparent advantage; its use, however, was continued throughout in all the cases in ordinary doses.

Dilute hydrochloric acid was given to all during a portion of the time. Turpentine was given in those cases where its use was indicated by the tympanitic condition of the bowels. Among other remedies used may be named: liquor ammon. acetatis, tr. aconite, and digitalis, also opium, bismuth, and sugar of lead to control the diarrhœa. Stimulants were used liberally, commencing their use early in the progress of the disease, and continuing them until the death of the patient or convalescence. Other remedies were used for special symptoms or indications, that need not be named here. A great difficulty in the way of successful treatment was the fact that regular nurses could not be secured, hence the nursing was done by *noble women* who left their families and fearlessly did their duty to a terribly stricken family, and as they changed off every twenty-four hours, we constantly had new parties taking charge of the patients, and then too, an insufficient number to give them the care that the severity of the cases imperatively demanded.

The daily record in the table gives the termination of all the cases with one exception, that of Fanny. In the early part of March an abscess formed in the lymphatic glands of her neck, and afterward for some six weeks she was constantly troubled with new abscesses in almost every part of her body; many of these discharged very profusely; no new ones have formed for two weeks; at this writing she is very low, but I think will finally recover. The record given in the table is that of the morning examination; the temperature was taken in the evening by the family or nurses, at which time it ran higher generally than in the morning. No permanent record was kept of this.

As regards the percentage of fatal cases, I will say, that, considering the malignant character of the disease, the unfavorable surroundings, and the imperfect nursing, it is a marvel that it was not greater.

Hoping I have not occupied more space than is alloted a single county society, I will close this report.

Respectfully submitted,
L. B. KLINE,
Chairman.

Dr. G. V. Mears, of Numidia, furnishes the following report of cases:—

From November, 1882, to present time, May 1, 1883, an epidemic of scarlatina has prevailed here, very mild in many cases; indeed, some of the patients failed to call for medical aid; a great many, however, were of the anginose variety. Whole families in some cases were attacked; in others, but a single case occurred. But few sequelæ followed the epidemic, and but two deaths; one from a complication of croup, the other from cause unknown. Meningitis, in a severe form, complicated one case which recovered. Nearly every case was complicated with rheumatism, even in quite young children who were not exposed to atmospheric influences. In a great many families one or more of the first attacked would present the characteristic throat, swollen glands of neck, high fever, affections of the joints and kidneys, but no eruption. I believe none of these latent cases desquamated. Treatment consisted of quinine, iron, chlorate of potassa, in the main, with whatever else the cases required.

Diphtheria occurred in sporadic cases during the epidemic of scarlatina, but one death occurred from it.

On February 3, 1883, a young man accidentally shot himself, the load taking effect just above the ear, blowing away both parietal, a part of frontal, and a great portion of the occipital bones. His cousin was about the sixth month of pregnancy at the time, and was terribly frightened by the accident. On April 4th, one month before the expected time, she gave birth to a child, the head of which was an exact counterpart of her cousin's head after the injury, an absence of bone from the frontal eminence to the occipital protuberance. She did not see her cousin till after he was in the coffin, but then the extent of the injury could plainly be seen. It is evident that the profound impression made upon her was the cause of the malformation of the child's head.

Dr. B. F. Sharpless, until recently of Numidia, at present practising in Danville, contributes the following interesting case:—

A Case of Intestinal Obstruction.—On January 15, I was called to see Joseph B., æt. 53, corpulent and of full habit. On arrival I diagnosed obstipation or intestinal obstruction, from his previous

history and the symptoms of the case, which were as follows: For about three years past he experienced difficulty in defecation, and a dull pain over the bladder, which at times merged into acute and lancinating pain. He also stated that each morning before breakfast, on going to stool, after straining severely, he would pass a small, hard piece of feces, about half the length of the little finger, and not any thicker, and with it a small quantity of dark grumous blood. Immediately after breakfast a large and free evacuation of the bowels usually occurred. As minor and occasional symptoms, dyspepsia and irritable bladder were present.

About four months since he commenced the use of saline cathartics, which kept the bowels loose until I was summoned on January 15th, and learned that the accustomed physic had not operated, and that a large dose of castor oil taken twelve hours afterwards made no impression. On examination a general fulness of the abdomen with tympanites and considerable pain on pressure over the bladder were noticeable. Examination, per anum, with the finger gave negative results, except slight enlargement of the prostate gland. Ordered hot fomentations to the hypogastrium, liquid nourishment, and administered a moderate-sized enema of soapy water, oil, and molasses.

January 16. As yet no motion of the bowels; symptoms of previous day aggravated with colicky pains, difficulty of micturition, and slight nausea at times; pulse normal. Directed carminatives, and an enema of three pints of soapy water, oil, turpentine, etc., to be injected slowly with patient in the genu-pectoral position, and to be retained as long as possible by compression on the anus. Believing a certain amount of intestinal paresis to be present, he was put on trs. belladonna, nux vomica, and physostigma, āā gtt. x, every three hours.

17*th*. Enema, given day before, was retained about twenty minutes, and when passed contained a minute quantity of feces. General condition worse; pulse weaker and smaller. Ordered patient to be placed in hot bath, with kneading and friction of the abdomen, to be immediately followed by a copious enema of milk and water with one-half drachm of comp. ex. colocynth. The injection was retained about one-half hour, and was soon followed by an evacuation of nearly two quarts of foul-smelling liquid feces, giving complete relief.

18*th*. Felt well, except somewhat prostrated. Ordered a dose of castor oil, and after its operation sufficient doses of fl. ex. cascara sagrada to keep the bowels free. From that time the patient enjoyed good health, and ate heartily until January 26; I was then

informed that his bowels had not moved. Visiting him soon after, I ordered a dose of Epsom salts and nothing but liquid food.

27*th.* Symptoms same as first attack, though considerably aggravated. Repeated the injections and ordered morphine with atropine every four hours.

28*th.* Nausea and vomiting, quickened pulse, severe abdominal pains, tympanites especially marked over the transverse and descending colon, and frequent desire to urinate. A physician was called in consultation, who suggested an injection of one pint castor oil, and small, frequently repeated doses of podophyllin. After waiting due time for those measures to operate, I employed the hot bath as before, administered a hypodermic of morphine, and left syringe with morphine tablets to use through the night if necessary.

29*th.* All symptoms more unfavorable; quick and wiry pulse; very acute pain in the hypogastrium, with clammy skin. Gave a hypodermic of morphia and atropia, and ordered enemata of whiskey punch, with tr. nux vomica and tr. physostigma, āā gtt. viii, every three hours. I called the evening of the same day and ordered iced brandy by the stomach with counter-irritants to the epigastrium.

30*th.* After a restless night, he was seen about nine o'clock A. M. and given a very copious enema of milk with salt and molasses through a large-sized bougie introduced to the sigmoid flexure; about one-half of the injection passed in ten or fifteen minutes, having caused very acute lancinating pain over the bladder. About two hours after that, the pain became intolerable, during which he exclaimed that he was bursting. Collapse immediately set in, and he died about half-past one P. M.

An autopsy was held an the 31st, assisted by Drs. Kline, of Catawissa, and Mears, of Numidia, and revealed that the immediate cause of death was due to rupture of the bowel secondary to obstruction, the peritoneal cavity being filled with liquid feces. The rupture occurred about two inches above the ileo-cæcal valve, and readily admitted the thumb. For a radius of about one inch in each direction from the laceration, the cæcum had a purplish hue, was highly congested and softer than normal, the softening and lividity increasing from the circumference towards the rupture; that portion of the bowel being apparently in a state of disorganization. On exploring the bowel downwards, no abnormal condition was found until about one inch below the sigmoid flexure; there the finger met an obstacle which proved to be a firm band of white fibrous tissue encircling the bowel, and so constricting it that the first phalanx of the index finger could be entered with difficulty. Immediately above that point, the intestine was abnormally capa-

cious, which was no doubt the mechanical effect of constant accumulation and over-distension. It might also be stated that the remainder of the last injection was undoubtedly absorbed, as none remained in the bowel. As a final remark, I will state that through the course of the disease, there were no symptoms to indicate disease in the right iliac fossa, and that the cæcum had not the appearance of post-mortem changes.

CHARLES S. HARDER, M.D., 1841–1883.

BY L. B. KLINE, M.D.

Dr. Harder was born at Catawissa, Columbia Co., Pa., on the 14th day of February, 1841. Early in life he, with several brothers and sisters, was left an orphan.

Upon the breaking out of the late war, he enlisted in the army, and proved a faithful soldier. He learned the printer's trade in Bloomsburg, but afterwards chose the profession of medicine and entered upon its study in that place, graduating at the University of Vermont, Burlington, in 1866.

He located soon after at Rhorsburg, this county, where he successfully practised his profession. He was faithfully devoted to his life work, and by his kind and courteous manner and manifest interest in the welfare of those who came under his professional care, he secured many strong and true friends, whose friendship continued to the close of his life. His character as a physician and citizen was above reproach.

Nearly three years ago his health began to decline, and soon it became evident that the fell destroyer consumption had laid hold upon him. As long, however, as his strength permitted, he continued to attend to his practice as far as possible. About a year before his death he was obliged to give up active practice, and moved to Bloomsburg. A few weeks before his death, he went to Florida, hoping to be benefited by the change of climate, but instead of recruiting strength, he began to fail more rapidly, and was scarcely able to return home. Upon his arrival there, he immediately took to his bed, and survived but two weeks, dying on April 5, 1883.

He had been for many years an active member of the County Medical Society, ever taking an earnest interest in its prosperity. He was also a permanent member of the State Society, having become such in 1876, at Philadelphia.

He leaves a wife and several children to mourn his loss.

REPORT OF THE CRAWFORD COUNTY MEDICAL SOCIETY.

THE only report from this county is forwarded by Dr. J. P. HASSLER, and consists of the annual reports of the Board of Health of Titusville. From these we glean the following:—

In contagious diseases there has been an increase since 1881.

At the commencement of the year a case of smallpox was brought to this city by an individual who contracted the same in the cars, and who passed through all the phases of the disease, visiting places of amusement, mingly freely with our citizens, and recovering from the same without any one being aware of its character, until his own family were infected, and death ensued before the Board had an opportunity to investigate the same. The powers of this Board were promptly put in requisition, and all necessary precautions taken in hedging in those places and isolating the families where it originated. By the general vaccination of this neighborhood and the surrounding vicinity it was confined to its original location, showing conclusively that sanitary measures, prudently directed and with power to enforce, can control the spread of any contagious disease. Many citizens were disposed to criticize the action of the Board in compelling children attending public schools to undergo vaccination or be excluded therefrom; these same individuals, when the disease was developed, were among the first to avail themselves of this protection. The result has shown, that, where vaccination is made general, it is a *sure* protection against this dreaded disease.

The extension of water lines has been less than that of previous years. The necessity exists for a general introduction of water throughout the whole area of the city. From the analysis of the water, taken from the water-works, by the National Board of Health, it is shown that we are supplied with a purer quality than that of most cities in this country. A larger number of diseases prevail where water is used from open or driven wells. The source from which the city and the wells are supplied, probably is of the same purity. The stream which supplies these wells in its downward course is contaminated with the filtrations from the cess-pools, water-closets, and all other surface impurities which percolate through a

porous soil, soon reaching the underlying veins of water, to be pumped to the surface, spreading disease and death in many cases to those using it.

It is desirable our sewers should be extended as fast as the public can sustain the expense attending it. It may be a hardship for some to meet this. Their compensation is in contributing to their own and their neighbors' health. It should be the duty of all to care for the public welfare. Where sewers are accessible it should be the duty of every one to connect with them.

All cities depend largely for their prosperity on the purity of their water supply, sewerage, and durable pavements, maintaining a character of healthfulness, absence of contagious diseases, and a low death-rate.

The location of this city, purity of water, its large area of sewers, and replacing with stone the rotten pavements with which we were unfortunately afflicted, have all combined to place our city in the front rank as to its healthfulness, and probably the lowest death-rate of any city in this county.

The death-rate for 1881 was 10.06; for 1882, 9.94.

Deaths in 1882 were, of—

Diphtheria	45
Scarlatina	19
Variola	4
Measles	2
Typhoid fever	2

In 1882, the proportion of deaths to cases was:—

Diphtheria	12 in 45
Typhoid fever	0 in 2
Scarlatina	2 in 19
Rubeola	0 in 3
Variola	2 in 4

REPORT OF THE CUMBERLAND COUNTY MEDICAL SOCIETY.

Cumberland County, in the Cumberland Valley, is one of the southeastern counties of the State of Pennsylvania; bounded on the north by Perry, south by York and Adams, east by Dauphin, and west by Franklin. It is separated from Dauphin on the east by the Susquehanna River, and is drained by two creeks which traverse the county from west to east and empty in the Susquehanna.

The area of the county is 545 square miles. The amount of marshy soil is comparatively small. The population is about 43,000; and as this is strictly an agricultural county, the chief avocations pertain to that industry.

The principal towns are Mechanicsburg, Carlisle, Newville, and Shippensburg, and are about nine miles apart along the line of the C. V. R. R. The character of the soil in the central portion of the county is heavy limestone clay; on the south it is sandy, and on the north both sandy and mixed with shale. The principal rock is limestone, with sandstone and slate on either side. The sources of water supply in the country are from wells and springs. Some of the towns have water-works, and the water is carried into the towns and distributed in iron pipes.

No mortuary tables being kept, I cannot give the causes or number of deaths in the county during the past year. Diphtheria has prevailed to some extent in different localities of the county, but it does not seem to have been of a very malignant type. The malarial fevers were more prevalent during the past year than usual, owing, I think, to the wet season. Typhoid fever was the prevailing disease during last fall in a certain part of Mechanicsburg, and also in the country along the northwestern part of the county. Smallpox broke out among the employés of the paper mills in Mt. Holly, from handling infected rags, and about fourteen cases were developed, with no deaths. Scarlatina and measles also prevailed in various sections of the county. Nothing of interest having been reported as occurring in the practice of our members, I bring this report to a close by stating that our Society is in its seventeenth year of existence, and is holding its own in member-

ship, three new ones having been added during the past year. But there seems to be a lack of interest on the part of some, and our meetings, though more frequent, are not as interesting nor instructing as they might be.

T. STEWART, Jr.,
Secretary.

Dr. S. P. Ziegler contributes the following:—

A case of gastritis followed by a complication of troubles. January 9, 1883, was called to see Mr. B., æt. 56, who was suffering extreme pain over the epigastric region; pulse 112; temperature 102°; tongue dry, clean, and bright red, with a glazed surface; bowels closed; kidneys secreting a small quantity of high-colored urine; appetite gone; sleep poor; respiration 28. Prescribed calomel, opium, and bismuth, demulcent drinks, and blisters over the stomach. Under this treatment the gastric symptoms yielded, but assumed those of a slow continued fever of a remitting form, *i. e.*, malaria. From this period the pulse was 80; temperature 98½°; tongue clean and moist; bowels open; kidneys acting more freely; appetite poor; sleep nominal. Prescribed antiperiodics and tonics, the patient convalescing and taking outdoor exercise; when suddenly, on February 12, the patient was taken with a violent cramp in the stomach, for which I was obliged to give large doses of sulphate of morphia before relief was obtained. Ten hours later violent nausea and vomiting ensued, with great tenderness over the pyloric region of the stomach, extending over the duodenum, ductus choledochus, gall-bladder, and anterior portion of the liver, closing up the ductus choledochus, and for a time suspending the function of the liver, the eyes and skin assuming a jaundiced appearance, the kidneys secreting freely, with a large amount of bile; violent nausea and intense thirst continued, the stomach rejecting all food, drink, and medicine for four days; pulse, during this stage of the disease, 110 to 112; temperature 101° to 102.2°; tongue dry, clean, and glazed, unquenchable thirst. Prescribed small doses calomel, opium, and bismuth, carbonic-acid water and aconite, mustard sinapisms and blisters over the stomach and liver. On the sixth day nausea partially subsided; gave small doses of blue mass and bisulphate of quinine. During this time the bowels were discharging a light clay-colored feces, without a taint of bile; pulse 99 to 101; temperature 101° to 103.1°. On the seventh day the liver commenced to act; discharges from the bowels copiously mixed with bile; the yellow color of eyes and skin disappearing; thirst and nausea continued; appetite poor, persistingly refusing food; bisulphate of

quinine and blue mass continued. Case assuming a typhoid form, milk and whiskey, beef tea, and diffusible stimulants ordered, as much as the stomach would retain; pulse 84 to 98; temperature 99° to 100°; tongue dry, clean, and glazed, no abatement of thirst; kidneys acting freely, urine highly colored with bile; bowels open, and discharging a copious secretion of bile.

March 1. Patient commenced coughing and expectorating heavy bronchial mucus tinged with blood: a new trouble, *i. e.*, latent pneumonia, patient showing symptoms of prostration. With former treatment, I commenced rectal feeding, with beef peptonoids, which the rectum retained for forty-eight hours, but soon showed symptoms of irritation, and rejecting every form of food; patient sank rapidly; no autopsy granted.

REPORT OF THE LACKAWANNA COUNTY MEDICAL SOCIETY.

Lackawanna County is, comparatively, a new one, having been in existence as such only since 1878. Yet we have for the county seat the fourth largest city in the State, Scranton. It has a population of over fifty thousand, and is cosmopolitan in character. Its principal industries are coal and iron, consequently the population is largely composed of foreigners.

The County Society was organized January 14, 1879, with a membership of seventeen. We now have thirty-seven names enrolled as active members. The meetings, which were at first held on the second Tuesday of each alternate month, were changed to quarterly meetings. At the regular meeting in April of the present year, it was agreed to meet on the second Tuesday of each month, which, I think, will have a tendency to make the meetings more interesting. Some of the younger physicians in the city have organized a "Medical Club," to which we have no objections, yet, were they to come into the County Society and increase its membership, and attend the meetings regularly, we would have one of the best county societies in the State.

The diseases most prevalent, during the year, were smallpox, diphtheria, scarlet fever, measles, whooping cough, typhoid fever, and pneumonia.

The first case of smallpox that made its appearance in the city. was some time in August, 1881. A little girl brought to the Catholic Orphanage, from Wilkes-Barre, was, soon after her arrival, taken sick; as soon as it was discovered that she had smallpox, she was isolated from the other children, some forty in number, not one of whom contracted the disease. The next case reported to the Board of Health was November 24th, a young man, at the time, boarding at a house with a number of others; he was removed to the smallpox hospital; not one of his fellow boarders contracted the dreaded disease. Cases were now reported from different sections of the city, and the Board of Health appointed district vaccine physicians and employed a physician to attend the smallpox patients; each case was isolated as much as possible, and some twenty thousand were vaccinated at the expense of the city. The thorough free vac-

cination, throughout the city, in a short time prevented the spread of the disease.

There were, all told, 105 reported cases, 25 of which proved fatal. The last case was discharged some time in July, 1882, and the city has been free from smallpox, with the exception of two light cases of varioloid, which were reported to the Board of Health on the 11th of March of this year. At Olyphant, a town a few miles north of Scranton, smallpox is raging in epidemic form and of a malignant type.

THOMAS STEWART, M.D.,
President.

W. A. PAINE, M.D.,
Secretary.

In Scranton, for the year 1882, there were 530 deaths: zymotic diseases, 103; constitutional, 80; local, 269.

Variola	22
Scarlatina	19
Diphtheria	14
Membranous croup	18
Typhoid fever	10
Cancer	7
Phthisis	46
Pneumonia	62

REPORT OF THE LANCASTER COUNTY MEDICAL SOCIETY.

This Society meets regularly on the afternoon of the first Wednesday of each month; these meetings during the past year have all been characterized by the unusual number of well and carefully prepared papers presented, the large number of instructive cases reported, and the interesting discussions thus elicited. The membership of the Society continues steadily to increase; during the past year twelve new members were added to the roll; two were lost by death.

The annual reunion of the Pennsylvania and Maryland Union Medical Association was held at Wild Cat Falls, August 31st. A large number of physicians with their wives and daughters were present, and the day was spent pleasantly in various ways.

Though no general epidemic has prevailed throughout the county during the year, the continued wide-spread influence of malaria, and its almost universal presence as a complication in other diseases, has been a subject of general remark. The fact also that almost double doses of quinine have generally been required to break up this influence, has often been reported. These points were specially noticed in an epidemic of influenza which prevailed this spring in the city of Lancaster. The diseases most frequently met with throughout the county during the past year have been those that in this section make up the great bulk of the general practitioners' work. In localities, scarlatina and diphtheria have prevailed as epidemics, extensively and of a malignant type, but as no vital statistics for the county are recorded, an accurate judgment as to the mortality cannot be formed.

In this latter respect, a step in advance has been attempted for the city of Lancaster, by the formation of a Board of Health, and the registration of births, deaths, etc. But the measures thus far adopted by this body fail to give satisfactory results. Their statistics are only published quarterly, and the manner of collecting them, by reports of physicians to the Secretary of the Board, does not by any means insure either complete or accurate results. Death certificates not being required, it is easy to see, that, among the

large class of cases not under any physician's special charge, many deaths will go unrecorded. So far as collected for the last year, these returns show a total of 247 deaths and 677 births in a population of nearly 30,000. In this report of deaths the returns of several prominent physicians are not included, nor are those of the coroner. It is manifestly too low by from 100 to 130 deaths.

The following notes, taken from these tables, furnish a fair index of the prevalence of different diseases.

Consumption	28 deaths.
Pneumonia	18 "
Typhoid fever	15 "
Diarrhœal diseases	13 "
Inflammation of the brain	10 "
" " bowels	8 "
Scarlatina	9 "
Diphtheria	8 "
Apoplexy	9 "

OLIVER ROLAND,
Chairman.

ADAM SHELLER, M.D., 1808–1882.

Adam Sheller was born January 12, 1808, at Big Chiques, Rapho Township, Lancaster County, Pennsylvania. He read medicine in the office of Dr. Henderson, of Hummelstown, Dauphin County, and attended lectures at the Reformed Medical College in New York City, where he graduated in 1830.

He began the practice of his profession at Hummelstown soon after, and remained there until the spring of 1834, when he removed to Mt. Joy, this county, in which place he continued to practise until within a few months of his death, which occurred on November 29, 1882.

He long served as elder in the First Presbyterian Church of Mt. Joy, and as superintendent of its Sunday school. Dr. Sheller was twice married, and had nine children; his widow and three daughters survive him.

In 1852 he was elected a member of the Lancaster County Medical Society, the meetings of which he generally attended, and took a more or less active part in its proceedings. By his pleasant and gentlemanly manner he gained many friends, and held the confidence and esteem of his fellows.

THOMAS B. COX, M.D., 1859–1882.

BY M. L. HERR, M.D.

The name of Dr. Thomas B. Cox will long live in the memory of his friends; for, although ranking among the younger members of the profession, he attained a high position, not only on account of his professional skill and ability, but also for his many noble traits of personal character. He was born January 8, 1859. He was the son of S. B. Cox, a prominent carriage builder of Lancaster, and one of the oldest families of the city. His early education was received at the Lancaster City High School, from which institution he graduated with high rank, and soon after entered the office of Dr. M. L. Herr, where he pursued his studies with a zeal that gave promise of an earnest devotion to the noble mission he selected as his life's work.

He entered Jefferson Medical College, and graduated in the class of 1879, when he returned to his native city and began the practice of medicine. He soon acquired a reputation which was remarkable for one so young. He was elected one of the physicians to the Lancaster County Hospital soon after his graduation, and here he had ample opportunity for indulging a remarkable aptness for original investigation. He early became an active member of the Lancaster County Medical Society, and was its corresponding secretary. In 1881 he became a member of the State Medical Society, and was always an interested and earnest worker in the interests of both these organizations.

His was a life in which the highest degree of Christian practice and kindness shone forth. Of positive but unassuming intelligence, intellectual vigor, earnestness and sincerity, and a high degree of qualification in his profession, with a richness in all the social virtues ever so nicely blended as at once to have made him loved, honored, and relied upon in the circle in which he moved and acted. He was apparently in good and even robust health up to within a few weeks of his death, which took place December 17, 1882, from what was evidently some hyperæsthesia of the cardiac plexus.

REPORT OF THE NORTHAMPTON COUNTY MEDICAL SOCIETY.

Of the stated bi-monthly meetings of our Society, four were held at Easton, one at Bath, and one at Allentown. The average attendance during the year was twenty-two, and great interest in the proceedings has been manifested by the members. With one exception, the papers presented were very fully discussed.

At the June meeting Dr. H. F. Praeger read a paper on "Certain Forms of Dystocia, with a Description of a New Cephalotribe." In October Dr. J. S. Hunt occupied the attention of the Society by a paper on "Idiosyncrasy and Diathesis as shown in the Medical History of a Family." In December Dr. Charles McIntire, Jr., gave a lengthy address on "The Necessity of Physical Examinations in our Public Schools," and at the February meeting Dr. T. M. Uhler read a paper on "Diphtheria; Treatment and Prevention."

Dr. John Sandt, a member of the committee, presents the following:—

We have had no particular epidemic in Easton or its surroundings during the past year. Scarlet fever prevailed to some extent, and, according to my observation, in a very severe form. I lost a very large proportion of the cases I had in charge. The nasal cavity became affected in a large number of my cases, causing blood-poisoning, and eventually death. In some cases the eruption came out copiously and remained the ordinary length of time, and every symptom seemed favorable, but all at once the nasal mucous membrane would become inflamed, causing an ichorous discharge. The throat would also become ulcerated, and in spite of all remedies these cases would almost all prove fatal in young children.

In surgery I had several fractures of the thigh, which I treated with extension by three or more bricks, the extension being made by applying strips of adhesive plaster to the leg from the knee down, and the extending band running over a pulley. To the band were attached the bricks. Counter-extension was made by raising the lower bed-posts five or six inches, the weight of the body making sufficient counter-extension. Alongside of the thigh and leg were placed sand-bags. The result of this treatment proved very

satisfactory, especially to the patient, as it produced very little annoyance to patient except lying on the back.

In obstetrics, I had a case of triplets. On October 21, 1882, I was sent for to see Mrs. D., aged about 37 years. The midwife, on account of a breech presentation, did not know what to make of the case. The pains were good, and delivery of a boy soon followed. The abdomen not being much diminished in size, I saw that there was another child within it. The pains had ceased as soon as the first child was born. On digital examination, I could just touch the bag of waters, but could not make out the presentation, as the patient resisted my attempts. There being no pains, I ceased, thinking that their return would bring the child down so that the membranes could be easily ruptured. The first child was born at 9 o'clock A.M. I waited several hours, and, there being no return of pain or hemorrhage, I left the patient for several hours. On my return I found her very comfortable, with no pain. She passed a comfortable night, and on my visit next day I found no return of labor-pains. I then thought that nature had had a fair chance to do its work and would not, so that meddlesome midwifery would not be out of place. I gave her a dose of fl. ext. ergot, and left her a short time, and on my return found that labor-pain had returned. The patient would not submit to the introduction of my fingers and part of the hand, in order to make out the presentation. The only way now was to give an anæsthetic and introduce the hand and determine the presentation. Having no ether with me, I requested counsel, which was granted, and after his arrival we gave ether, and under its influence the hand was introduced and the membranes ruptured, and a vertex presentation found, and in a short time a female child was born. In attempting to deliver the placentæ, another bag of waters was found, and then we knew that we had a case of triplets. The third child was born soon after the second; also a vertex presentation. These children were born between 3 and 4 o'clock P.M. The placentæ were delivered without difficulty, in one body, being attached membranously to each other. We gave ergot several times during the delivery of the last children to prevent hemorrhage. The children together weighed twenty pounds after being dressed. I will state there was a very large amount of liquor amnii in each sac, which with the three children had so distended the womb, that there was total inertia after the birth of the first child. Some weeks before delivery the woman was almost helpless, and unable to go about, on account of her distended abdomen. These are the facts in the above case. I reasoned that the womb, having been so much distended, produced

the inertia, and that by giving it time to regain some vigor, the danger of post-partum hemorrhage would be lessened. If there would have been no undelivered placenta in the womb, I would have delayed delivery longer yet. There was no bleeding, but I feared septicæmia. The woman had a very good getting up. One of the children, the boy, would not nurse at first, and soon wasted away and died, a few months old; one of the girls died of pneumonia several months afterward. The smallest is still living and hearty.

Dr. A. K. Seem, of Martin's Creek, reports a case of *Albuminuria with Cerebral Embolism*—a sequela of scarlatina.

Ada M., daughter of Dr. M., æt. 5, a bright little girl, had an attack of scarlatina, with the usual throat complications, followed at the end of the second week by general œdema, violent heart action, vomiting, from which she almost entirely recovered, by the use of digitalis, etc. In the fourth week, whilst eating her dinner, she was suddenly paralyzed on the right side, became comatose, and died in twenty-four hours in a state of asphyxia.

Dr. W. L. Estes, of St. Luke's Hospital, S. Bethlehem, Pa., favored the Society with the following interesting notes of four surgical cases.

Case I.—George R., nine years of age; American parentage; admitted into the hospital February 6, 1882. Five months before admission, the patient had been struck by a locomotive, and besides serious internal injuries, sustained a fracture of the upper one-third of the femur. In a statement of his case, his local physician said that he had first tried extension and counter-extension, afterwards a plaster-of-Paris splint, without success in retaining the fragments in place; and, at the expiration of five months, he was sent to the hospital to be treated for *ununited* (?) fracture of the femur. At the time of admission the patient was a sturdy, bright little fellow, in excellent general health; no history of any constitutional taint or cachexia. He walked with crutches, and carried the left lower extremity in a limp, helpless manner; foot inverted, toes pointing toward the dorsum of the right foot. He could, by leaning over, bring the toes of his affected extremity to the floor, but could not bear any weight on the foot without experiencing sharp pain in his thigh. Examination showed an enormous projection in the external aspect of his left thigh about one and a half inch below the greater trochanter, hard and resisting, not movable nor separable from the femur, not tender, no crepitus, acetabular motion perfect and the extremity sound as a whole. No pain on motion. Néla-

ton's line showed the greater trochanters higher than normal and rotated outwards; two and a half inches shortening of the extremity. It was evident that the fracture had united firmly, but in a very bad position. On February 22d the operation for the reduction was performed. A slightly curved incision was made over the deformity with convexity downward, about three inches long, the incision carried through the periosteum, and this membrane carefully separated from the bone over its whole circumference. The exact state of the fragments and their positions were then very evident. The fragments were firmly united, but at an angle of perhaps 120°. The fracture had been about one inch below greater trochanter, the upper fragment had been tilted upwards and inwards, and slightly rotated on its longitudinal axis by the action of the psoas and iliacus muscles, the lower fragment drawn upward and outwards by the thigh muscles, so that only the inner edge of the lower fragment and outer surface of the upper were in apposition, and had in this position united. So firm was the union that a chain-saw had to be used to separate the fragments. A wedge-shaped piece of bone was removed from the external obtuse angle, firm manual extension employed, and after much effort, the ends of the two fragments were brought into good position and wired together with two thick pieces of silver wire. The iliacus and psoas had become so contracted, however, that one set of wires were broken by their pull, and it was only after the wires were doubled and twisted very tightly that the fragments were held in position. While the limb was still extended by an assistant, a firm plaster-of-Paris splint, with iron brackets at point of wound, was applied to the extremity and pelvis. The wound was brought together (with two drainage-tubes inserted) and a Lister dressing applied. The little patient suffered agonies for a few days from the contractions of the muscles, but this gradually ceased. He made a slow recovery. He was discharged from the hospital three months after the operations, with no deformity, a small sinus still open, limb three-fourths of an inch shorter than the other. Walked with very slight limp. This sinus closed entirely after a small fragment of bone was discharged, some two months after he left the hospital. At the time of presentation to the Society, one year after operation, limb of perfect shape, except the scar left from the operation wound, one-half inch shortening. Walks, runs, and jumps, and says he knows no difference between the limbs.

Case II. *Amputation at the Hip-joint.*—Albert B., 13 years old, of German parentage; phthisical family history; was admitted into the hospital October 13, 1882. About seven years before admis-

sion, inflammation of the right hip-joint had set in, and, notwithstanding almost continual surgical treatment, several months of which had been conducted in Pennsylvania Hospital, Philadelphia, had gone on from one stage to another, and when first seen, the little fellow had already sustained three years of suppuration from the joint and surroundings. The year previous to the last admission, I had exsected the hip-joint and afterward about one inch of the upper end of the femur; but, notwithstanding that after each operation he was much improved, the bone disease was so considerable and extensive that these operations did not suffice. The suppuration continuing, and examination showing that the whole shaft of the femur was osteomyelitic as well as the whole acetabular components of the right os innominatum necrotic, it was decided after consultation to amputate the whole extremity. At the time of last admission there were signs of amyloid visceral degeneration already advanced. Liver and spleen enlarged, urine albuminous, and boy in quite a cachectic condition. The great bugbear of surgeons in amputations at the hip-joint being hemorrhage, in thinking over this case my greatest endeavor was to devise some means to prevent loss of blood during the operation, as the fatal effects were to be doubly feared in a case already so reduced. I finally hit upon an expedient which worked most admirably. I had noticed, in operations in the upper part of the thigh, that the reason the retaining band of Esmarch's bandage failed to restrain the return of the blood seemed to be, because the double elasticity of the tissues of the side opposite to the limb operated upon, around which the band must pass, and the band itself was so great that the constriction was materially counteracted; so, I reasoned, if one should oppose some non-resilient substance or apparatus to the opposite side, the whole pull of the band will be exerted around the inguinal region to which it is applied. Acting upon this idea, at the operation, which was performed October 17th, after the patient was anæsthetized, I applied a long Liston's splint to the right lower extremity and side, and passed the Esmarch retention band over this after constricting the other inguinal region by the ordinary figure-of-eight turns applied very tightly. The splint served the double purpose of an even firm support as well, for upon drawing the buttocks of the patient to the edge of the table, I laid the end of the splint on a high stool, and thus the good extremity was held evenly and firmly without an extra assistant. The method used was the Guthrie antero-posterior flaps, from without inward. *Not a drop of arterial blood was lost during the operation.* Liston dressing carefully applied (one large drainage-tube used). I should have stated

that not only was the whole limb removed, but the ramus of the ischium, a part of the ridge of the ilium, and a small portion of the ramus of the pubis were also exsected because of extensive necrosis. Notwithstanding this extensive operation, the patient reacted quickly and well. His highest temperature was 101° F. on the fifth day, caused by eating too much solid food. Two weeks after the operation, he was out of bed; four days later, was walking about the ward on crutches, his stump healed except the openings where the drainage tube had been and some old sinus-openings. His general condition at once improved and continued good. Except the old sinuses leading to pelvic bones, a few of which are still kept open by bits of dead bone which every now and then discharge from a still necrotic pelvis, he has a well-healed, painless, and nicely formed stump. He enjoys excellent health.

Case III. *Exsection of the Tarsus.*—Jennie M., æt. nine years, of German-American parentage, admitted into the hospital September 25, 1872; family strumous. Child has suffered more or less her whole life with glandular enlargements and inflammations. She was in pretty fair health, however, up to eight months before admission; when, while jumping, she sustained an injury to her ankle-joint; which, at first not noticed particularly, grew steadily worse notwithstanding treatment. The child was brought to the out-door department about two months before admission; at which time, osteitis of the tarsus was diagnosed, and a superficial ulcer on external aspect of the tarsus was attributed to rubbing of shoe, and various applications received. At this time a silicate-of-sodium bandage was applied, and the ulcer was treated on general principles. Notwithstanding the rest insured by the "glass" bandage, the joint did not improve. She was therefore brought to the hospital for operation. On admission: Child very anæmic and much reduced; general glandular enlargement; chronic hypertrophy of tonsils; nasal catarrh; evening temperatures of 101° to 103° Fahr. The ulcer had contracted to an opening of a sinus which led to the astragalus, and the characteristic anterior bulging over the astragalus was well marked. The whole tarsus very painful and tender, the slightest motion causing exquisite pain. On the 27th an incision was made over the external aspect of the tarsus, slightly curved downward, and tarsus explored with finger. It was found that not only the astragalus but the whole tarsus was involved. So soft were the bones that, after the periosteum was raised, they could be easily scooped away with a Langenbeck's spoon; and, in this manner, the whole tarsus, except the cuneiform bones, was exsected, and the articular surface of the tibia, which was found eroded, was also

scraped. Lister dressings applied, and firm splint. For six to seven days the patient had considerable febrile disturbance; temperature on second day after operation 104° Fahr., though there was no suppuration. From the 5th of October she steadily improved. The whole tarsal cavity filled rapidly, and the patient was discharged January 2, 1883. There was good motion at ankle-joint. Except a slight flattening of the arch, and a shortened os calcis, there was no deformity. The patient's foot inclined to turn inward, and this was corrected by a weak-ankle apparatus with which she can walk quite well.

Case IV. *Exsection of the Tarsus.*—Hugh McC.—good family history—when eight years of age, had an accident, which resulted in a permanent impairment and slight deformity of his foot. But after a few months he was perfectly able to walk around and do the work of an ordinary farm laborer. Eight months before admission, in jumping to the ground from a wagon, he again hurt his foot. This injury resulted in pain and swelling, and finally suppuration of the tarsus; and by two sinuses continued to discharge. On November 13, 1882, he was admitted for operation; at this time the patient was in pretty good general health. He was excessively nervous, and it transpired under cross-examination that he had been a hard drinker. He was unable to bear any weight on his left foot; walked with crutches. Left tarsus swollen and tender; bulged especially anteriorly. Two sinuses, one anteriorly over astragalus, and one internally leading to scaphoid. The probe revealed dead bone at the bottom of both sinuses. November 16th the operation was performed. Incision revealed a condition almost identical with that in Case III.; so that all the bones of the tarsus, except the posterior part of the os calcis, were removed; the scaphoid alone removed *en masse*. Dressing and splint applied as in Case III. There followed only slight febrile disturbance. Case progressed very slowly, forming quite a contrast in this regard to that of the child. At the time exhibited to the County Society, February 21, 1883, he still had a cavity to be filled; but motion was good; very little deformity; able to bear some weight on the foot; no pain; scarcely any discharge. Since that time the case has steadily improved, and he begins to walk on the foot. Only very small openings remain where drainage-tubes were removed. The indications are that he will make a good recovery.

Dr. Isaac Ott reports, as follows, his results from his private physiological laboratory.

1. The rattlesnake poison mainly kills by producing a failure of the cardiac organ and a great fall in arterial tension.

2. Ammonia, alcohol, and digitalis temporarily increase the arterial tension.

3. Ammonia and alcohol increase the rate of the pulse, whilst digitalis slows it.

4. Towards the close of life, the intra-venous injection of either alcohol, ammonia, or digitalis stimulates the circulatory apparatus, but the excessive stimulation totally and rapidly exhausts the cardiac irritability. Recent experiments, made with the infusion of digitalis, show that, when it is administered previously, the poisonous effects of the rattlesnake and copperhead venom are considerably mitigated by it.

5. The venom of the copperhead is weaker in toxic activity than that of the rattlesnake.

6. The heart, with both kinds of venom, becomes greatly prostrated, and in rapid deaths is their main cause.

7. The venom of either snake does not affect the sensory nerves.

8. The sensory centres are affected by both venoms.

9. The muscular excitability continues to be little affected at the time of death by the poison of the copperhead.

10. The two venoms greatly resemble each other in physiological activity.

11. The cardiac force, rhythm, and frequency are lowered by both venoms.

12. The arterial tension is greatly lowered by both venoms.

13. The blood, after copperhead poisoning, shows no microscopic changes of its globules or any difference in its spectrum.

14. The vibration of the rattlesnake's tail is sixty per second.

15. The sensory fibres decussate in part in the spinal cord. This has been denied in the case of the cat.

16. The vaso-motor nerves also decussate.

17. The sudorific, here as elsewhere, closely follow the vaso-motor and cross over.

18. The vaso-motor fibres run in the lateral columns of the spinal cord.

19. The "loco plant," astragalus mollissimus, decreases the irritability of the motor nerves.

20. It greatly affects the sensory ganglia of the central nervous system, preventing them from readily receiving impressions.

21. It has a spinal tetanic action.

22. It kills mainly by arrest of the heart.

23. It increases the salivary secretion.

24. It reduces the cardiac force and frequency.

25. It temporarily increases arterial tension, but finally decreases it.

26. It greatly dilates the pupil.

27. Morphia stimulates the growth of senecio scandens, whilst chloral, chloroform, and ether retard it.

28. Convallaria increases the arterial tension greatly at the same time that the heart begins to beat more frequently, that the heart begins to fall before the tension.

29. The decrease of the cardiac frequency is not due to cardio-inhibitory excitation, but to an action on the heart itself, probably its muscular structure.

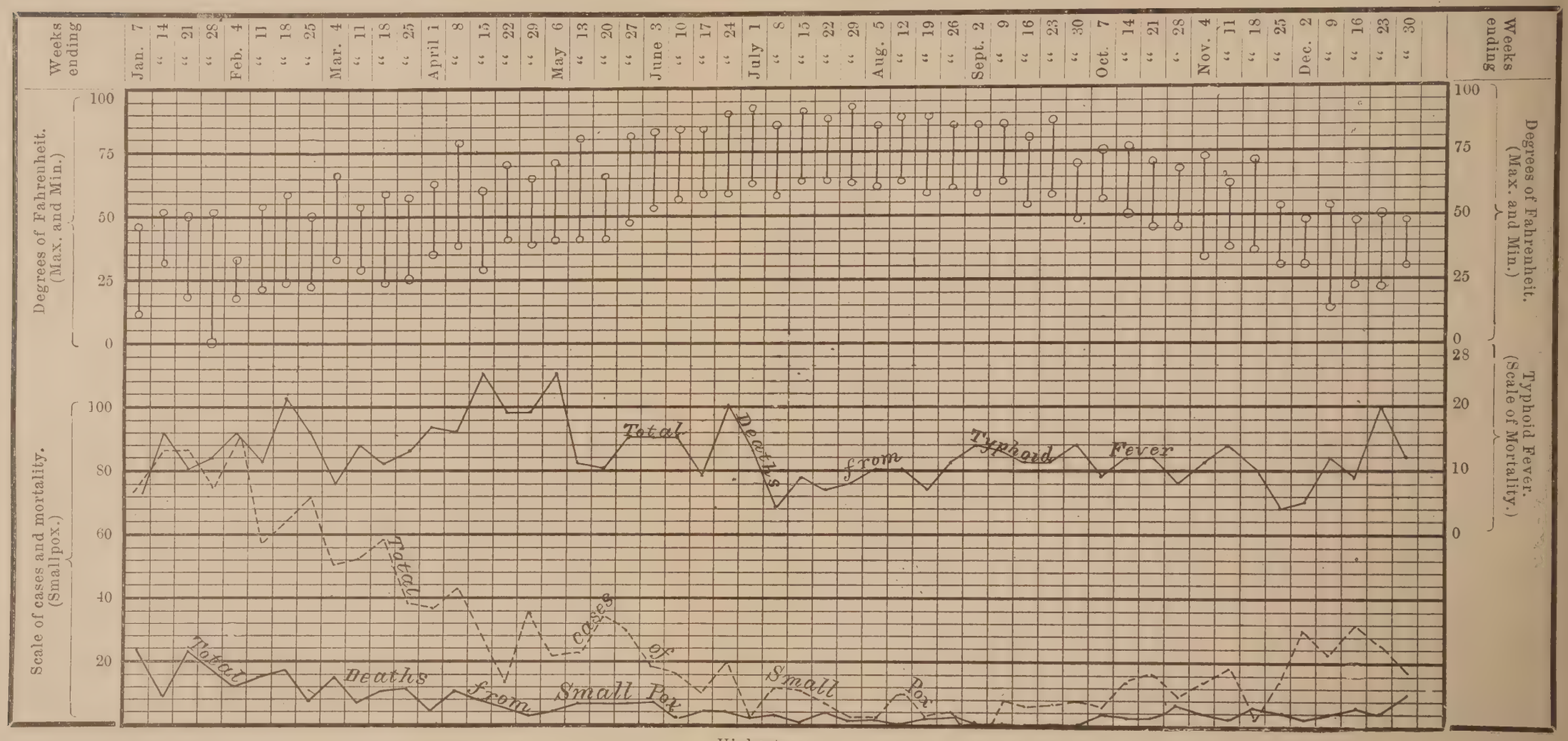
30. The rise of arterial tension is mainly due to stimulation of other vaso-motor apparatuses than the main monarchical centre.

31. It causes clonic spasms.

RICHARD H. BECK,
Chairman of Committee.

Chart A.

Exhibiting the Course of Smallpox (Cases and Deaths), with the Deaths from Typhoid Fever, and the Range of the Thermometer during the year 1882.


Weeks ending
Jan. 7 " 14 " 21 " 28
Feb. 4 " 11 " 18 " 25
Mar. 4 " 11 " 18 " 25
April 1 " 8 " 15 " 22 " 29
May 6 " 13 " 20 " 27
June 3 " 10 " 17 " 24
July 1 " 8 " 15 " 22 " 29
Aug. 5 " 12 " 19 " 26
Sept. 2 " 9 " 16 " 23 " 30
Oct. 7 " 14 " 21 " 28
Nov. 4 " 11 " 18 " 25
Dec. 2 " 9 " 16 " 23 " 30
Degrees of Fahrenheit. (Max. and Min.)
100 75 50 25 0
Scale of cases and mortality. (Smallpox.)
100 80 60 40 20
Degrees of Fahrenheit. (Max. and Min.)
100 75 50 25 0
Typhoid Fever. (Scale of Mortality.)
28 20 10 0
Total Deaths from Typhoid Fever
Fatal cases of Small Pox
Total Deaths from Small Pox

Highest.

Thermometer

Lowest.

Total deaths from smallpox. (Scale to the left.)

Total cases of smallpox. (Scale to the left.)

Total deaths from typhoid fever (Scale to the right.)

REPORT TO THE PHILADELPHIA COUNTY MEDICAL SOCIETY FROM THE COMMITTEE OF METEOROLOGY AND EPIDEMICS, FOR THE YEAR 1882.

Again your Committee asks permission to present certain tables prepared for it most kindly by Mr. George E. Chambers of the Registration Department of Philadelphia. The chart marked "A," and the tables designated respectively as "B" and "C," will enable any one to make an analysis of the sanitary condition of Philadelphia, so far at least as it is connected with meteorological and epidemic influences. The detailed statements of the health officer, and the forthcoming report of the Board of Health, readily obtainable by all interested, would seem to make extended analysis unnecessary here.

We would call attention to the fact that epidemic influence is noticeable in the cases of variola, typhoid fever, and diphtheria.

The variolous epidemic which prevailed with such virulence during 1881, continued to decline through the year, partly owing to the spasmodic attention paid to vaccination, and in larger measure from the exhaustion of material provided by those unprotected against the variolous poison. Although the number of deaths from this cause was very much diminished, there was no week in which the mortality lists did not receive an accession from it. While we are not disposed to deny that the variolous poison may receive added force from epidemic influence, we very much question whether the marked difference which exists in its prevalence during different years is not simply traceable to the very great difference in the amount of susceptible material provided from year to year. When under the pressure of fear, and of enlightened professional influence, the population is protected by vaccination, the disease gradually disappears—stamped out locally. Such a state of things continues until a certain amount of unprotected material has accumulated, when, upon the introduction of the disease from without, cases again occur, and another epidemic begins.

For some years smallpox was not present in Philadelphia; but whether, with the existence of anti-vaccinationists, and the increasing amount of travel, it can again become unknown among us, is a

matter of grave doubt. It would certainly seem as if, in the case of this poison at least, we might well dispose of that mysterious element we term epidemic. There is no mystery about the prevalence of variola. It is a contagious disease, and will always prevail wherever, upon its introduction, it finds a large amount of material unprotected by previous attacks, or by properly performed and repeated vaccinations. In view of such conclusions, how imperative is seen to be the necessity for a carefully drawn compulsory vaccination law! Until such a law is passed and vigorously enforced, it is idle to expect the obliteration of smallpox. That the remedy is certain, there can be no reasonable doubt. It remains but that the medical profession should continue to urge upon the public the importance and value of vaccination, and to press for the passage of a law making repeated vaccination compulsory.

By referring to the table marked "B," it will be seen that the number of deaths from typhoid fever was large, 650. This can hardly be attributed to epidemic influence, the disease being rather endemic in its nature, and always contributing largely to the mortality lists of Philadelphia. So far as we know, there have been no marked local outbreaks of the disorder, nor have the efforts of the Board of Health been successful in tracing its prevalence to a local sectional cause, as has been frequently done in other cities. Without doubt the defective system of sewerage existing in Philadelphia, and the extremely vicious plumbing permitted in so many of its houses, are among the chief causes of the very large number of cases of the disease which must exist to produce so heavy a mortality. For several years the Board of Health has published an extra sheet with its weekly Bulletin, in which the deaths from typhoid fever and some other diseases are classified according to wards. A diligent study of this sheet has failed to reveal such a grouping of deaths as would point to a local epidemic of typhoid fever in any one part of the city.

While there has always existed some diphtheria in Philadelphia, it has enjoyed great immunity as compared with New York and some other cities. During 1882, however, there has been a marked increase in the number of deaths reported from diphtheria. The increase was very marked during the last three months of the year. Twice in the month of December the deaths from this cause exceeded forty, and the total number for the year was 933, while in 1881, the number was but 457. By inquiry at the Registration Office, I find that in 1882, the deaths from croup were 466, and, as it is reasonable to suppose that at least some of these cases were really

diphtheritic, it will be seen that the increase of deaths from diphtheria has been very great.

As to the causes which have led to this increase of diphtheria we are unaware of anything shedding new light upon the subject. Experience has pretty well demonstrated that deficient underground drainage favors the growth and propagation of the special cause of diphtheria. To any one, therefore, who is at all familiar with the exceedingly defective manner in which the sewers are built in Philadelphia, it can cause no surprise that with the constant leaking which is going on from them, and the consequent saturation of the underlying soil, there should be an increase of such diseases as the one in question.

At the same time, it does not become your Committee to dogmatize in a matter where very much remains to be learned. Especially is this the case as the Committee is not cognizant of precise and accurate observations having been made. Theories and speculations are abundant, and almost as contradictory as abundant, but carefully made and judiciously weighed observations are exceedingly rare.

Table "C" shows the total number of deaths for the year by weeks, the thermometrical and barometrical conditions, together with the amount of rain-fall. The amount of rain which fell during the week ending September 23d, ten inches and nine one-hundredths, was almost unprecedented in this climate.

Upon the chart marked "A" will be found a record of the cases of smallpox and the deaths resulting from it, the deaths from typhoid fever, and the range of the thermometer during the year.

The statistics of deaths we believe to be strictly reliable, as much so as in any city, as we believe it to be an *exceedingly* rare thing for a death to occur without the proper certificate being filed at the Health Office.

Taking the population with which Philadelphia was accredited by the census of 1880, and calculating the amount of annual increase on the basis of 2.31 per thousand shown to prevail during the previous decade, we have the population in Philadelphia at the middle of 1882, to be 886.562. The deaths numbered 20,059. The death-rate per thousand was, therefore, 22.62.

SAMUEL ASHHURST,
Chairman,
J. G. RICHARDSON,
L. TURNBULL,
BENJ. LEE,
GEO. HAMILTON.

Table B.

1882. Weeks ending—	Smallpox.		Diphtheria deaths.	Scarlet fever.	Typhoid fever.
	Cases.	Deaths.			
January 7	74	23	18	8	7
" 14	86	9	20	9	16
" 21	86	23	16	7	10
" 28	75	18	8	5	12
February 4	90	12	22	7	15
" 11	58	15	15	11	11
" 18	65	17	15	8	21
" 25	71	7	12	7	16
March 4	50	14	13	4	8
" 11	52	7	6	7	14
" 18	58	10	13	8	11
" 25	38	11	16	7	13
April 1	37	4	13	6	17
" 8	42	11	11	5	16
" 15	13	8	8	9	25
" 22	24	5	12	6	19
" 29	34	3	10	9	19
May 6	21	4	9	8	25
" 13	22	6	8	7	11
" 20	34	6	18	11	10
" 27	29	6	20	10	15
June 3	18	7	11	8	15
" 10	16	2	13	6	15
" 17.	10	4	17	11	9
" 24	20	4	13	..	20
July 1	3	3	12	9	13
" 8	12	3	15	5	4
" 15	11	1	14	7	9
" 22	7	4	13	6	7
" 29	3	2	13	7	8
August 5	2	2	10	5	10
" 12	9	1	6	2	10
" 19	3	2	7	6	7
" 26	4	3	17	5	11
September 2	..	1	13	4	14
" 9	8	1	17	2	13
" 16	6	1	22	2	11
" 23	7	1	26	5	11
" 30	9	1	30	2	14
October 7	5	4	24	4	9
" 14	13	2	25	5	12
" 21	16	2	12	4	12
" 28	9	6	23	..	8
November 4	13	2	28	4	11
" 11	18	3	27	1	14
" 18	2	5	39	2	10
" 25	14	4	29	6	4
December 2	30	3	42	5	5
" 9	23	4	41	9	12
" 16	32	5	35	4	9
" 23	25	2	29	9	20
" 30	17	10	27	6	12
	1424	314	933	310	650

TABLE C.—*Total Weekly Deaths (Still-born excluded), with Meteorological Observations, etc.*

1882. Weeks ending—	Total deaths (still-born excluded)	Thermometer.			Barometer	Rain
		Mean.	Max.	Min.	Mean.	(inches).
January 7	399	25.7	46	11	30.25	.11
" 14	390	38.7	51	31	30.05	1.65
" 21	450	34.2	50	19	30.13	1.43
" 28	371	27.9	51	0	30.27	.75
February 4	433	31.9	37	17	29.95	1.81
" 11	443	38.9	54	21	30.08	.78
" 18	453	45.3	59	24	30.25	1.03
" 25	398	36.1	50	23	30.11	1.23
March 4	405	49.3	66	32	30.09	1.13
" 11	386	43.5	54	28	30.18	.73
" 18	425	38.1	59	24	30.13	.42
" 25	386	41.7	57	25	30.11	.72
April 1	439	48.0	64	35	30.11	.57
" 8	426	51.7	78	39	30.25	.25
" 15	429	43.0	60	28	29.91	.05
" 22	390	53.8	70	41	29.98	.76
" 29	381	49.3	65	38	30.05	.96
May 6	386	53.6	71	40	30.06	.41
" 13	356	53.1	80	41	30.01	1.97
" 20	358	53.2	66	41	30.05	1.27
" 27	423	62.8	81	47	30.06	.90
June 3	353	68.0	82	53	29.85	.81
" 10	345	69.3	83	56	29.85	.04
" 17	333	72.0	87	59	29.96	....
" 24	305	75.1	90	59	29.99	.95
July 1	372	78.7	94	62	29.87	.73
" 8	289	69.5	85	57	29.96	.58
" 15	421	80.1	91	68	29.99	.49
" 22	495	76.9	87	68	30.11	.13
" 29	540	82.7	93	67	30.05	....
August 5	540	75.0	85	66	30.13	1.18
" 12	406	76.4	88	64	29.95	.19
" 19	439	75.7	88	58	30.00	.56
" 26	356	73.2	85	61	30.09	.21
September 2	372	73.1	85	58	30.12	4.17
" 9	375	73.8	85	63	30.07	.35
" 16	316	68.3	80	54	29.95	1.07
" 23	350	71.6	87	57	30.04	10.09[1]
" 30	348	59.9	70	49	30.18	.34
October 7	353	64.9	75	56	30.25	.01
" 14	298	61.2	76	50	30.06	.35
" 21	303	61.0	71	45	30.06	.46
" 28	311	54.3	68	45	30.04	.50
November 4	358	55.7	73	34	30.23	.11
" 11	323	49.0	63	33	30.27	.05
" 18	328	46.9	71	36	30.13	.23
" 25	349	39.3	53	30	30.08	....
December 2	376	35.3	49	30	30.07	.60
" 9	405	32.9	54	14	30.25	.02
" 16	370	34.9	47	23	29.96	.81
" 23	413	36.1	50	23	30.15	1.14
" 30	390	38.6	48	30	30.22	....
	20059					

[1] In three days.

REPORT OF THE SCHUYLKILL COUNTY MEDICAL SOCIETY.

THE medical history of the year 1882, in Schuylkill County, does not present many noteworthy features. The climatic changes were not remarkably sudden or violent. Inflammatory diseases were therefore not very prevalent.

Epidemics were absent, and fevers of a typhoid type rare. The infrequency of most zymotic diseases was noticeable, but the tendency to an increase of cases of true miasmatic fevers, beyond any previous experience in this county, was remarked by most of the active practitioners among us. A malarial infection seemed to have invaded this hitherto unmolested mountain region, and with its advent a diminution in the number of typhoid cases was observed. In a village but two miles from Pottsville, nearly every family suffered from intermittent or remittent fever, and I had occasion personally to attend numbers of similar cases in locations where malaria apparently could not be generated. Such a case I recall as originating on a high hill, in a solitary cottage, surrounded by cultivated fields, and entirely away from running streams, marshy hollows, or other local breeding places of miasmata. The problem of causation in this and similar cases is to me not soluble on the hypothesis of local poison-beds. It seems rather, when taken in conjunction with the spread of malarial fevers throughout many of the Middle and Eastern States, as if an atmospheric wave had carried with it an "epidemic constitution" of the air, germ laden perhaps from other latitudes with the specific poison. The physicians of this county will look with interest to the coming years' experience to determine whether this invasion has been merely a temporary phenomenon, or whether a permanent lodgment of miasmatic diseases has been effected in our midst.

The prevalence of a local endemic of variola in the town of Bethlehem caused much attention to the subject of vaccination during the year past, and caused much discussion (professional and lay) as to re-vaccination—as to the best virus for use, bovine or humanized—and as to the best method of performing this most important of minor operations. It may, therefore, not be out of

place for your reporter to record here his convictions upon this subject.

An experience of nearly thirty years as an adherent to vaccination from the humanized virus, will perhaps be of some value to those whose opportunities have not been such as to warrant them in committing themselves positively to any side in the questions at issue. I may also venture to say that the peculiar character of the population of Schuylkill County has made observations here specially rich and valuable. For this population is very largely composed of immigrants of the lower classes from foreign lands, who have been specially subjected to epidemics of variola by neglect of vaccination, due to prejudices which our physicians can scarcely overcome.

For about thirty years I have vaccinated with virus obtained by taking off the dried crusts from the arms of healthy infants, as yet unaffected by the process of teething. This virus has been kept up from year to year, and used from the original stock, with no renewal from fresh sources. The virus has not deteriorated. The vaccine disease runs the same course now that it did at first, and has proved in every successive endemic of variola as protective as ever. I have seen nine severe invasions of endemic smallpox in my own neighborhood, and the power of the humanized vaccine virus has never failed me in preventing the spread of the disease. In all my experience I never allowed a family where smallpox existed to have any additional cases after I was called in, except where vaccination was too recently performed upon an already infected patient. For example, I have on record one family where I was called to seven cases of high fever which proved to be variola. I vaccinated the three remaining members of the household, and no further infection occurred. Another family of eleven had a single case, and vaccination of the ten others was effectual in staying any further spread of the disease. I vaccinated with humanized virus, previous to his devoted service at Bethlehem among the stricken people of the smallpox endemic, the Rev. Mr. Morrow. His vaccination was a perfect one, and his protracted stay in the pest house among the victims of the plague, while consoling the sick and burying the dead, was made in entire safety. So much for the two points of deterioration of virus, and of protection against variola.

With this experience, I have not felt inclined to try what could be done with bovine virus. Nevertheless, I have watched with the keenest interest its use by others, and have formed an unfavorable opinion of it by contrast, for the following reasons:—

1st. Failures in implanting the bovine virus are much more fre-

quent. It seems more difficult to inoculate the human being with virus from a lower animal than to infect him with the virus that has been "naturalized" in a system like his own, and fitted to germinate within him.

2d. When successfully inoculated, the bovine virus produces violent general disorder, and often very serious local lesions. I have observed high fever, immense inflammation, nay, threatened gangrene, in subjects of the bovine inoculation. I have been called upon to treat patients for the very severe results of their vaccinations, and some have said they would prefer the risk of smallpox to the certainty of such extreme vaccine disease.

3d. Many of the severe inflammations consequent on this bovine inoculation are not protective. A young man, aged about 27 years, Mart. Quin, was vaccinated in Bethlehem with bovine virus. I treated him for about ten days with a terribly inflamed arm from hand to shoulder. When the inflammation began to subside, I vaccinated him on the other arm with humanized virus, and it ran a typical course, proving to me that, whatever else his first inoculation had done, it had failed to protect him from smallpox.

4th. If the reasons given are not sufficient to prove insurmountable objections to the bovine vaccination, it is enough that the physician employing it has no control or knowledge in exercising his art in a most important affair. He becomes a mere vaccinating machine—entirely dependent upon commercial sources for the purity and safety of virus—not an intelligent operator, with material of his own choosing. To conclude this topic, my observations would lead me to restrict the employment of bovine virus to the useful purpose of renewing the stock of vaccine, when it had become deteriorated by age, or had not been properly selected.

In this county the profession is united in its confidence in the protective power of vaccination; so much so that re-vaccinations are generally recommended only after puberty, or in the face of an epidemic of smallpox. Personally, I have had such confidence as not to have taken the precaution of being re-vaccinated in any of the numerous endemics of that disease to which I have been exposed. In my own case, as in most perfect vaccinations done during infancy, I believe a life-long immunity from smallpox to have been acquired.

If careful records had been kept by the profession of this county, it would be found that a very large majority of all cases treated in 1882 were catarrhal disorders of some of the mucous surfaces. It would seem that such conditions were more prevalent than ever before. Perhaps three-fourths of the entire sick-list for the past

year was made up of acute or chronic diseases of this class. No class of cases taxes more severely the resources of our art, and no other local affections deserve more earnest attention. Constitutional diseases, so called, originate but too frequently from neglect or inefficiency in the treatment of these local maladies. Most cases of phthisis seen in this region are due, primarily, to local, limited catarrhal inflammation of the pulmonary mucous membranes. Many typhoid fevers are not the enteric fever of Wood, but catarrhal affections of the bronchial and intestinal surfaces, attended by disordered innervation and depraved secretions. Such constitutional states as anæmia, and neurasthænia in its varied forms, may become established from neglected or uncured catarrhal inflammation of the stomach and hepatic ducts as the sole pathological condition.

Those of us who have recognized for many years past these facts, have felt the paramount importance of remedying the local conditions present—by placing increased stress upon hygienic measures, upon careful attention to the secretions, and upon such detergent, disinfectant, and demulcent remedies as the special local disease requires. Most of us do not approve of the early and indiscriminate feeding and stimulation usually administered in these disorders. We recognize an especial value in an early restriction in diet, and early sedative measures. It is often necessary even to deplete in suitable cases—especially in catarrhal nephritis and pneumonia—and always to await the period of the decline of the disease before commencing the supporting and analeptic treatment, so valuable when judiciously timed.

In this region the abuse of alcoholic and fermented liquors has been a fruitful cause of catarrhal throats and stomachs. Brewery employés are victims of beer drinking. With them chronic catarrhs are established, ending often in phthisis, in ulceration of the stomach, and in fatty disease or degeneration of the liver and kidneys. Warned by this, many of our physicians are disposed to give very infrequent permission for the use of stimulants in the treatment of catarrhs. Your reporter believes this to be an essential rule of practice. Fermented and alcoholic liquors are essentially irritant to mucous membranes, and especially to those of the alimentary tract, even in health, but to a much greater degree when they are invaded by disease.

On the other hand, your reporter believes that a peculiarly valuable remedial effect is produced by the refrigerant and sedative properties of carbonic acid gas in effervescent mixtures. He employs them in the first stage of catarrhal diseases as sedative remedies, in the form of effervescent citrate of potassium, effervescent

soda powders, effervescent Saratoga, Vichy, and Carlsbad salt, etc. etc. When tonic treatment becomes necessary, he usually employs the effervescent preparation of pepsin, bismuth, and strychnia; or administers some equivalent remedy in a state of admixture with carbonated waters. To the presence of this gas is greatly due the value, in irritable stomach, of champagne—so universally administered in that condition—as, also, the great food value of koumiss, in making milk tolerable to the digestive surfaces, when almost all other food is distressing or distasteful.

While giving these hints as to treatment, your reporter would also speak of the great relief afforded in painful gastro-intestinal catarrhs by the free use of hot water. Washing off the coated mucous surfaces every morning, on rising, with hot water—medicated, if necessary—is a valuable resource, apparently but little appreciated by the profession at large. Pepsin, pancreatin, acid phosphates, and any appropriate medicines required for the relief of chronic conditions of catarrh, are best administered, in the majority of cases, in hot water.

If in this brief sketch of catarrhs I have said nothing of the special diseases of the naso-pharyngeal tract, or of the catarrhal ear affections, it is not because they are infrequent in this county. They abound here. But their successful management, beyond the general account just given, depends on a surgical and special local treatment, and would require a paper devoted to them alone for proper exposition.

This paper will be concluded by giving an account of some noteworthy cases in the practice of your reporter during the year.

I. *Some Cases of Swelled Leg after Fevers.*—In July and August, 1882, Mr. P. suffered, in the western part of the State, from a violent attack of intermittent fever. After its cessation both legs began to swell in the region of the ankles, and severe pain accompanied the swelling. He was treated for rheumatism unsuccessfully, and finally was brought here in a condition of entire helplessness, and great suffering. Examination disclosed a uniform swelling of the legs extending to the knees—no special joint trouble—but a painful tract, following the course of the internal saphena veins of either leg, and giving the impression of a thickened cord to the sense of touch. A similar thrombosis was discovered on the temple, involving the left temporal vein. Treatment was devoted to the supposed condition of phlebitis. Rest, blisters, bandaging, and tonics effected a gradual cure, which seems permanent.

Two daughters of Matthew Gibson, of Mount Carbon, during convalescence from mild cases of enteric fever, were attacked by a

smooth uniform swelling of one of the lower extremities only, in each instance. The swollen glossy skin was tense almost to bursting. Great pain was felt, and some febrile movement occurred. In each case a similar treatment to that above noted was entirely successful. Dr. D. W. Bland saw one of these cases with me, and concurred in my views of its nature and treatment. Thrombosis, dependent on phlebitis, seems to have been the true pathological explanation of these cases.

Since making these observations, I have seen an elaborate paper upon swelled leg in fevers, by Dr. Warburton Begbie, of Edinburgh, published in the Sydenham Society's issues for 1882, where a full bibliography and careful general study of similar cases is given. If an extraordinary complication of fevers in Europe, it is also very rare here. The cases now recorded by your reporter are the only ones that have ever come under his notice.

II. *Two Cases of Placenta Prævia.*—Mrs. S. B., of Fishbach, was seen in a state of complete collapse after a terrible uterine hemorrhage. Pain was absent, and bleeding over, when I arrived. After an anxious afternoon, spent in stimulating and supporting the ebbing vital forces, reaction was brought about successfully. Fearing lest a recurrence of hemorrhage should prove fatal if delivery were not accomplished, I proceeded to dilate the os uteri, which was readily done. The membranes were ruptured, and the placenta detached partially and pushed to one side. One blade of the long forceps was introduced into the womb—next, the second blade was carried up—and by external manipulation the head fixed, while the forceps were locked successfully above the superior strait. Traction brought down the head, and compressed the placenta so completely that no more hemorrhage occurred. During these manœuvres ergot and stimulants were freely given. For about an hour steady pressure of the forceps was kept up, and at last the head was brought into the pelvis, whence it was speedily extracted. The placenta was immediately removed, and complete recovery of the patient resulted.

An exactly similar course of treatment was equally successful in the case of Mrs. Thomas M., of Pottsville, seen by me in consultation with Dr. D. W. Bland. In both cases death was imminent unless interference had been successful.

This method of procedure was recommended by Dr. R. Davis, of Wilkesbarré, in the Address on Obstetrics, written for the State Medical Society, in 1876. If the *Transactions* had contained no other contribution, this one would have, in itself, possessed sufficient value to make the volume for 1876 a noteworthy one. Your

reporter believes that Dr. Davis's method of managing placenta prævia is the nearest approach yet made towards a true scientific procedure; and has reported these cases in order to call attention afresh to the very great value of this mode of managing unavoidable hemorrhage.

III. *Fractures at or near the Elbow-joint.*—This hitherto difficult class of surgical cases, which puts treatment by splints at defiance, when applied (as customary) in the angular position, I have for several years past been successful in managing in the extended position and without splints. This method, originated by our fellow-member, Dr. O. H. Allis, of Philadelphia, seems destined to supplant all previous ones. Its success in Schuylkill County, where it was introduced to the notice of the profession about two years ago, by your reporter, has been most gratifying, and is leading to its general adoption.

The importance of a better mode of treatment than that prescribed in ordinary surgical works, has been well illustrated by a case which occurred a few years ago in Pottsville.

A fracture of the condyle of the humerus united with deformity so marked as to lead the attending surgeon to refracture the arm. Inflammation was set up in and around the joint. After much suffering for months, such organic disease was established that amputation was deemed necessary. The operation was made by your reporter, in the presence of Drs. G. W. Brown, D. W. Bland, O. M. Robins, and others. Dissections showed the ununited condyle lying loose in the joint, surrounded by a mass of encephaloid cancer deposit, which involved all the neighboring tissues. The patient was a young man, whose mother had died of uterine cancer. The latent tendency was developed by local irritation of a high grade and persistently in operation. That, in turn, was due to the ill-judged attempt to remedy the faulty results of the established treatment of fracture near the elbow-joint. This case deserves noting as a proof of the local origin of cancer. So far no constitutional manifestation has been shown by recurrence of the disease, or otherwise. The patient's health remains excellent, and every prospect of future immunity seems to exist.

It may not be amiss to utter here a word of caution against the use of this or any other form of retention apparatus when the fracture has been made compound, and free communication exists between the joint and the external air. One such case I saw in the stage of purulent inflammation, with hectic fever set up. It had been treated by Allis's method, erysipelas had set in, and amputation was the only resort possible to save life. An immediate re-

section is, of course, the only proper means of treating these cases when first seen, and may eventuate in making a useful arm, which otherwise would necessarily be sacrificed.

I subjoin contributions to this report from Drs. Brown, of Port Carbon, and Brady, of Lost Creek.

Dr. Geo. W. Brown writes:—

The past year has been one of unusual good health in this vicinity, if we *except* the prevalence of malarial fever in localities where it never prevailed before, and seemingly in violation of all the physical circumstances supposed to be necessary to its production, viz., stagnant water, heat, and decaying vegetation; it having prevailed in the highest, driest, and most healthy localities, quite as frequently as the opposite. It was quite amenable to treatment, but showed a strong tendency to return on very slight provocation.

There has been no epidemic prevalent of any kind, either among children or adults.

We have had a few cases of typhoid fever of a sporadic character, with two or three deaths, attributable, in some instances, to improper nursing, in others to supervention of inflammation in some vital organ, and in others to the lateness at which they were subjected to treatment. In looking about for the cause of death in typhoid fever, very often of apparently the most robust patients, while many of far less natural vigor struggle through and recover, I am disposed to attribute it to that very vigor of constitution which enables them to disregard these local pains and aches, which always usher in the disease, and which enables them to continue their ordinary avocations, and thus defer giving up and going to bed and sending for relief, much longer than the weak case; the local troubles, whatever they may be, in the mean time making such progress that it is found impossible to arrest it unless they come under treatment.

One such case came under my observation a short time since. He was a young man 23 years of age, who had never been sick in his life. He was a puddler and worked in Phœnixville, and while there he was attacked with what he supposed was an ordinary diarrhœa which he let run for three weeks, and then returned home to this place, where he arrived on Saturday night, and was walking around the streets on the Sabbath, but he did not think then he was sick enough to call for aid. And thus things continued (the diarrhœa continuing) until Thursday morning, when I was sent for, owing to his having become delirious and his friends having difficulty in keeping him in the house. I found him laboring under all

the symptoms of typhoid fever in its advanced stage. I prescribed such medicines, nourishment, and stimulants as I thought were suited to the case, but he continued to grow worse from hour to hour, and died on the following Sabbath morning. If this young man had been less vigorous, he would have been obliged to give up his employment much sooner and applied for assistance, which, in all probability, would have carried him safely through the attack.

Inflammatory rheumatism has been very prevalent during the last quarter of the year, but I have nothing new to communicate in regard to the treatment. I have found the salicylate of soda valuable only in the acute stage, and as soon as the active stage has gone by, and the case become somewhat chronic, I have had much better results with the steam bath, alkalies, and the iodide of potassium.

There have been a few cases of diphtheria and scarlet fever, but they were mostly of a mild type, and seldom proved fatal. Believing that we had all got into a rut or groove in prescribing the chlorate of potassa in these diseases, and continuing it until nearly all the red globules were bleached out of the system, I have for the last six months ceased to prescribe it in these diseases, and substituted the carb. amm. with some one of the bromides, and I have every reason to be satisfied with the change, as the results have been very satisfactory.

I have seen quite a number of cases of hydrocephalus among children this spring, all of which proved fatal, as usual, with me.

In the surgical treatment of railroad and other injuries I have had more than the ordinary amount of erysipelas to contend with, which I presume is owing to the constitution of the year, as it has prevailed idiopathically in the town for some time.

In midwifery we have had 137 cases; 71 males, 54 females, and 12 premature. As a general thing, patients usually made a good recovery; but yet there was quite a number of cases of metritis and metroperitonitis, but no deaths. We make it a practice to give *ergot* in every case, either immediately before the expected birth of the child or immediately after, and we never have a case of flooding. We also give it in all cases where the presentation is natural, the os dilated or dilatable, and the pains weak and slow, and always with the best results. Anæsthetics have no place in our practice, unless when manual or instrumental delivery becomes necessary.

Dr. S. H. Brady reports:—

Having no epidemics to report, I will confine myself to matters of general importance.

I place first, as having very important medico-legal bearings, the following case: D. H., a miner, while being hoisted up the slope at Lost Creek Colliery, received a slight blow on his forehead, from a gate at the top of the slope, which threw him back into the car. He got up unassisted, climbed from the car, and walked a distance of at least a half mile; part of the distance down the side of the mountain over a rough path. On seeing him an hour after the accident, this was his condition. Not a scratch where he had received the blow; a puffy pulse of 40; complete paralysis of both upper and lower extremities; and fracture with dislocation of the second and third dorsal vertebræ. With a pad under the point of injury acting as a fulcrum, the head and shoulders on one side and the body and lower extremities on the other as a lever, the displacement was perfectly reduced. The man died on the third day.

Pneumonia has been very prevalent during the winter and spring; but I have had no deaths, except in one or two cases in infants. The treatment is a tonic one, my reliance being placed on ammonia and quinia.

Have had, within the last two months, three cases of puerperal convulsions. Having tried the usual remedies without effect, I used hypodermics of $\frac{1}{4}$ gr. morphia every half hour; nor was I compelled to use more than two doses before the convulsions were checked, in each case, not to return. The first case died within twelve hours of seizure; the second recovered with miscarriage; and the third died in seventy-two hours after miscarriage.

I would speak highly of rectal alimentation, having sustained a patient, who was left almost bloodless by a severe hemorrhage, caused by the inroads of lupus, for three weeks; not a particle of food or drink being retained by the stomach during that period. She even gained for a time, but died several weeks after the stomach became unable to take food.

Mortality report.

Burned in mines	3
Fractured vertebræ	1
Fractured pelvis	1
Puerperal convulsions	2
Pneumonia, capillary (infants)	3
Diphtheria	2
Croup	1
Scarlatina	1
Atrophy of liver	1
Hemorrhage, intestinal	1
Cerebral meningitis	2
Lupus	1
Phthisis	1

REPORT OF THE SNYDER COUNTY MEDICAL SOCIETY.

THE meetings of the Snyder County Medical Society during the past year have been characterized by an increased attendance of members from the various sections of the county. Our membership is gradually increasing. The discussions at our meetings have been generally of a practical character, but it is to be regretted that no notes of them have been preserved, as they would doubtless add greatly to the interest and completeness of this report. Very few of our members have responded to the request of the committee for the necessary information to render this report full and reliable, a difficulty which is so frequently encountered as to suggest the necessity of adopting more efficient means for securing the data for these reports, if they are to possess sufficient merit to justify publication in the State *Transactions*. The most practicable method of meeting this difficulty seems to be that physicians generally should cultivate the habit of keeping a record of practice or case book, in which the history of all important cases can be kept during treatment. This has been rendered exceedingly easy of accomplishment by the publication of very convenient books by different publishers or authors. Although the members of this Society have been derelict in the duty of furnishing material for this report, this Society is still full of life and activity.

We meet four times a year. At each meeting the president appoints a gentleman to write an essay on practice, another on surgery, and so on for the seven different branches of medicine, and this has thus far been cheerfully complied with, and many of these papers have given evidence of a great amount of research. The discussions and criticisms have been full and free, but have never transgressed the bounds of good temper and professional courtesy. Harmony pervades our ranks, and all seem fully resolved to take a more elevated stand for the advancement of our noble and honored profession.

At the present time an epidemic of measles prevails. Thus far

the disease has been of the ordinary type. Otherwise our county enjoys good health.

Respectfully submitted,

MARAND ROTHROCK,
R. ROTHROCK,

Committee.

Dr. R. ROTHROCK reports a singular case of gunshot wound which happened during our late Rebellion.

On the afternoon of May 28, 1863, Dr. H. Henry was shot in the back. I had known him personally for some time before the wound was received. He was about fifty years old, weighed one hundred and ninety-six pounds, and was a healthy robust man, a sumptuous liver, and fond of the good things of life. He had not practised his profession for a number of years, but had been engaged in farming. On the morning of the 29th he was placed in an ambulance, and hauled for two days over exceedingly rough roads. He came under my care on the 31st.

On examination, I found that a ball had penetrated the back, opposite the fourth lumbar vertebra, and one and a fourth inch from the spinous process to the right. He told me he was shot while in the act of mounting his horse at the foot of a hill, the gun being discharged from the top. I could find no aperture of exit, as so much time had intervened since he was wounded, so I deemed it imprudent to make an exploration; I also discovered that his right thumb had been shot almost entirely away at the metacarpal joint, and that there was an extensive bruise upon the left hip, evidently resulting from his falling on a stone. The surgeon who first dressed the wound thought that the thumb could be saved, and had drawn the lacerated edges together with adhesive plaster, and applied a bandage. There was some acceleration of the pulse and much thirst; he was perfectly rational, though irritable and despondent, saying he knew that he would never recover. His bowels were very much confined.

I gave him a dose of cathartic pills, after the action of which I gave opium freely, applied cold water dressings. Up to June 15 there was little alteration in his general symptoms, except a gradually increased irritability of the nervous system. His bowels acted freely from the medicine he had taken; his urine was copious, and voided without difficulty; his fever was continuous, and slightly on the increase, though, when not compelled to give opium, I endeavored to depress his pulse with veratrum viride. For the last two days he was unusually drowsy, constantly muttering when

asleep, but when aroused he became perfectly rational. He had perfect use of his limbs, and did occasionally get out of bed and walk about the room. The wounds suppurated freely and looked well.

June 17. Not so well to-day; tongue getting dry, with red tip; considerable delirium; voids urine in bed, from which arises a strong ammoniacal odor.

18*th*. No material change.

19*th*. Was sent for by nurse in the night, who said the doctor had a "choking spell," and thought he was dying. I found him comfortable and rational. Amputated the fragment of thumb; he stood the operation well without chloroform. After a time, in moving him to dry his bed, he had a spasm, in which his head was drawn to the left side. The spasm continued for a few seconds only. Nurse informed me it was the same as he had last night; so I discovered the true nature of the "choking spells." He was taking tincture of gelseminum and veratrum viride.

20*th*. Spasms occurred occasionally through the night, and he had a few during the day. Continued treatment.

21*st*. Spasms ceased; typhoid symptoms became more prominent. This evening I put him on tonics and stimulants.

22*d*. He became worse; involuntary discharges from bowels and bladder; mind clear; says he has an irresistible desire to evacuate. He has partially lost the use of his legs.

23*d*. Gradually sinking; paralysis increasing.

24*th*. Great prostration; unable to move.

25*th*. Died about one o'clock.

Post-mortem.—Dr. Hamilton and myself concluded to make an examination, and discover the true nature of the wound. Making a longitudinal incision across the track of the ball, we found that it had entered the spinal canal, at the junction of the spinous process and body of the upper part of the last lumbar vertebra. The track of the ball could be traced no farther than the canal. We then opened the abdomen, turned out the viscera, and with a chisel cut through the last lumbar vertebra into the canal, from which exuded a large quantity of dark, sanious acid pus. On inserting the finger down the spinal canal, the ball was found lying in the channel—fitting it nicely—three-fourths of an inch from the upper edge of the sacrum. It was a minie-ball, with its conical end down. The spinal cord was thus completely destroyed through the entire body of the last lumbar vertebra, and one inch or more down the sacrum.

During the autopsy we discovered a matter of peculiar interest: the gall-bladder was completely filled with calculi, two hundred and

eighty-five in number; they were of an irregular hexagonal shape, about the size of dried English peas, and were beautifully fitted in the gall-bladder like seeds of a pomegranate. Dr. Hamilton and myself divided the calculi, but am sorry to say that I have lost my half. The gall-bladder was fully distended, containing a small quantity of thick bile.

This case presents two points of interest: one, that a man should live so long—nineteen days or more—with so great a portion of the spinal cord completely destroyed, and with an ounce ball lodged in the spinal canal, and that so serious an injury should at first produce but little constitutional disturbance, and no impairment of locomotive powers or action of the viscera; the other, that unusually good health, strong physical powers, and exemption from any chronic disease or special pains, should exist, when the gall-bladder was so fully distended with calculi.

That motion and sensibility in the lower extremities remained intact for several days, succeeded by gradual paralysis, may be explained in the following manner. The legs are supplied by nerves from the lumbar plexus, which is formed by five pairs of nerves, the last of which issues from the foramina of the last lumbar vertebra and sacrum. This pair only was destroyed by the bullet, and the integrity of the plexus remained. In the course of a few days, however, inflammation and suppuration extending upward, so much of the cord was involved as to destroy the roots of the remaining four nerves, when paralysis and inability to retain the discharges would naturally follow. I have often regretted that we did not examine the extent of the destruction of the cord above, but from the amount of pus discharged I am satisfied it was considerable. This, gentlemen, is my theory of this singular case of gunshot wound. If I am wrong, I wish to be corrected.

Dr. H. H. Bordner, of Beavertown, reports, April 17, 1883, the following:—

The health of our town and surrounding vicinity has been exceptionally good. A few cases of diphtheria and scarlet fever occurred late in the spring, but were not fatal. No epidemics prevailed during the summer. The fevers were not of a continued or typhoid nature, and were easily controlled. During the winter and spring the pneumonias were of a peculiar nature, with severe brain and bronchial symptoms, causing a slow convalescence, yet not proving fatal. Beavertown with a population of 450 persons, and the surrounding country with a population of about the same number, had but two deaths during the year, both married women. The first died of

dropsy, aged 27 years. The latter death was caused by cancer of stomach, which I will briefly give for some of its peculiar and varied symptoms.

In May, 1882, I received a message to call upon Mrs. D. S., æt. 50 years, of rather short stature, but weighing 225 pounds. I found her seated in an easy chair, conversing freely, and to all appearances feeling well. She had been troubled more or less with the disturbances of the menopause for about one year, coming on at intervals from one to two and sometimes more months, there being no regularity in menstruation, as in times gone by. She had also an extensive umbilical hernia, which at times caused her uneasiness. Her tongue was slightly coated, eyes and skin had a jaundiced appearance, breath fetid, decided constipation, and a peculiarly waxy sallowness of complexion. There had, however, been little or no emaciation, her usual weight and corpulency being unaffected. Her principal complaint was pain in the stomach and vomiting. These symptoms commenced about two years ago, but had latterly been increasing in severity. The vomiting was very irregular, at times before, and at other times after meals. Pain always preceded the vomiting, which occurred two and three times in twenty-four hours. After vomiting there was no pain in the stomach, unless produced by hand pressure. The matter ejected from the stomach had a yellowish frothy appearance, containing mucus and pus, and in amount about one quart at a time. During these two years of "bilious dyspepsia" as she called it, her appetite was remarkably good, indeed rather voracious at times. She had during the time been treated by different and able practitioners, and for a variety of diseases, until finally a diagnosis of ulcer of stomach verging into cancer was settled on. I ordered a few comp. cathart. pills, until her bowels were quite free, afterwards the following was given: subnitrate bismuth, 60 grains; ingluvin, 120 grains; calomel, 2 grains; divided into 12 powders, one of which to be given every six hours during the day, and to alternate with the following solution: glycerine, two ounces; creasote, thirty drops; a teaspoonful to be given every six hours. Diet of beef-tea and milk, with milk and lime-water as a drink. At times an anodyne was given. This treatment was mainly pursued for ten days, at which time her symptoms had greatly improved; pain and vomiting had entirely ceased, and she concluded she was well. After attending to her household duties for more than a fortnight, and experiencing no pain nor uncomfortable symptoms, she ate a large dish of dandelion boiled in vinegar. A few hours after eating this mess, she felt uneasy in her stomach, pain and vomiting again ensued, and continued without much abatement, her stomach eject-

ing everything shortly after taking it. Death finally closed the scene in forty-eight days after eating the dish of salad.

A *post-mortem* examination was made eight hours after death, in company with Dr. J. O. Wagner. On section, the adipose tissue over the region of the stomach was found to be fully three inches in thickness, and as yellow as gold. The stomach measured nearly six inches in length, empty, and so contracted that in size it had the appearance of a common gut. The inside diameter was less than two inches. The wall was from one-half to three-fourths of an inch in thickness, which increased toward the pyloric end. On pressing it between the thumb and fingers, it would give way almost like hard cheese. It was so friable that the fingers could easily be pressed through it. In cutting, it was found to contain gritty, sandy spots, similar to those found in sponge. An examination of it under the microscope showed the tissue to be unmistakably of a cancerous nature. The bile-duct was very large and the gall-bladder contained fifty-seven large biliary calculi.

Cancer, it seems, is more prevalent in this county than in most places, as this is the third case which has been found within a year, and in a radius of fifteen miles. I am inclined to believe that some few of those numerous fatal cases of chronic gastritis, which are reported at times, are cancer. Were *post-mortem* examinations more frequently allowed, they would often prove a very beneficial school to the practitioner, showing us some of the glorious mistakes we are liable to make in a too ready diagnosis. It is true, that certain rules of authors aid us in deciphering almost hidden mysteries, but exceptions, as well as deceptions, are numerous among the diversified diseases which we are called upon to treat. Age and experience should make us more cautious and slower in making our diagnosis in such affections.

REPORT OF THE WESTMORELAND COUNTY MEDICAL SOCIETY.

The committee appointed to report to the State Society, beg leave to submit the following, regretting that it is not more comprehensive, but feel justified in predicting better for the future, considering the flourishing condition of our Society, and the interest manifested in its meetings, and the full discussion of papers read before the Society. We would call especial attention to the reference made in several of the papers to the treatment of diphtheria by the use of calomel in large doses.

Respectfully submitted,

J. L. CRAWFORD, M.D.,
Chairman.

Dr. F. L. Maish, of Mount Pleasant, reports:—

There has been no epidemic here during the year of any importance, with the exception of a short epidemic of smallpox at the Alice Mines, one mile west of Mount Pleasant, during July and August. The first case occurred in an emigrant family, and was pronounced chicken-pox by an irregular practitioner, and not until Dr. Rigg was called, was the correct diagnosis made, and proper precautions instituted for the arrest of the disease. Dr. Wakefield, who had subsequent charge of the case, informed me that in all there were about 25 cases; 18 variola and 7 varioloid; of the former 8 died. One case of varioloid occurred at the Standard Mines, but by strict quarantine and vaccination, no other cases were reported.

Typhoid fever and diphtheria have been endemic. I called the attention of the Westmoreland County Society, in my essay, at the last meeting, to iodoform as a remedy of considerable importance in the treatment of diphtheria. My belief has been considerably strengthened by the treatment of other cases since, and by the favorable report in medical journals. I use the iodoform locally by insufflation, several times in twenty-four hours, and give stimulants freely from the start. Five out of six malignant cases, treated recently by the above manner, recovered promptly. The mortality from malignant diphtheria by other methods has been about

forty per cent. in my hands. I have had but little experience with the calomel treatment; suffice it to say, that I have been disappointed from what I have been led to believe by other physicians who have used it extensively.

I have the case of a boy, sixteen years of age, convalescent from the second relapse of typhoid fever, four weeks from the primary attack. Subnormal temperature was reached, and remained for two days; it rose suddenly, and by the third day of what promised to be a relapse, the temperature had reached 104° Fahr. It had risen from 97½° Fahr., six and a half degrees without remission. At this time, violent hemorrhages from the nose occurred, requiring plugging of both anterior and posterior nares; the pulse was now usually about 120, and the bowels constipated. The temperature fluctuated betwen 104½° and 103° Fahr. The patient during all these days was very ill; he had a frequent feeble pulse, and constant tendency to return of hemorrhage, and was only kept alive by stimulants. On 15th day, a favorable fall of the temperature was recorded; and by the 24th day, subnormal temperature was again reached. Convalescence seemed to be declared, and with the exception of an eczematous hyperæsthesia of both feet, which prevented the patient from sleeping, everything looked favorable. The seventh day after subnormal temperature was reached, came another rise, and without warning, the thermometer registered 103° Fahr., of what promised to be a second relapse. On the 6th day, temperature 104°, pulse 140. Bowels still constipated, and moved only by injection. Typhoid eruption marked. Nervous symptoms prominent, and hyperæsthesia of feet almost unbearable, the weight of the bed-clothes setting him almost frantic. On 9th day, the temperature was 104½° Fahr., pulse 160. The patient looked bad, but not so severely ill as during the first relapse. From the 10th to the 13th, the temperature fell considerably, and on the morning of the 15th day, was 100° Fahr. But the evening temperature remained high to the 21st day. For the next seven days the temperature gradually fell, and on the 29th day of the relapse, normal temperature was again reached. At this writing, the patient is able to be about the house.

The above case has been a very interesting one to me, as I have never met but one relapse before, and never saw a patient recover in similar circumstances.

Typhoid fever and diphtheria during the past year have been generally of a mild type. My treatment of typhoid has been the modified expectant plan.

Dr. J. G. Stewart, of Markle, reports as follows:—

We have no endemic diseases here; had an epidemic of scarlatina, and *three malignant cases.* In the treatment, followed J. L. Smith's plan as laid down in the last edition of his work on diseases of children. One death out of three. In the past year have had two cases of *malignant* diphtheria only. The following is my plan of treatment: ℞. Tr. ferri chlo. ʒj; quinia sulph. gr. viij; syrup. simplicis, ʒiv; M. S. Teaspoonful every hour. Also at same time: ℞. Acid. benzoic. ʒiij; sodii borat. ʒiij; aquæ puræ, ʒxij; M. S. Two, sometimes four, tablespoonfuls. I lost neither case. I will continue this plan of treatment until I lose a case, then I am going to try calomel, ten to twenty grains every hour. In diphtheria, I use an atomizer, and generally a solution of lactic acid every two hours.

Dr. Wm. McWilliams, of Merwin, reports as follows:—

The past year has been unusually healthy. We had no endemics or any prevailing diseases, more than ordinary brashes, common among families.

In obstetrics, all natural labors, except two cases, requiring the use of forceps; mothers and children did well.

One case of smallpox, with recovery. Treatment: Evacuated stomach and bowels by a purge, sponged the body, produced perspiration; gave aconite to control fever, and maintain perspiration; gave macrotin to assist a transfer of eruption. For throat trouble, sol. chlor. potas. and tinc. chlor. ferri; for pitting, iodide of collodion.

We have had no cases of diphtheria in our community for two or three years.

Dr. J. E. Rigg, of Stoners, reports as follows:—

Typhoid fever has prevailed here for the last year. It has generally been of a mild type. The treatment followed by me has been mostly the expectant plan, with a few doses of hydrarg. chlor. m. et bicarb. sodii, during the first week, with the effect, we think, of modifying the course of the fever, and the cases that took this treatment seemed as a rule to run a shorter course than others. I have in the last year treated about fifty cases, with three deaths, all dying from lung complications, they being predisposed in that direction.

There has been quite an outbreak of syphilis within the past six months. It started from an infected woman that stopped a short time here.

We had about the close of the year 1881, and extending well into

1882, a very severe epidemic of diphtheria. I treated about twenty-four cases, twenty of which were very severe; there were three deaths. In many of the cases the anterior and posterior nares were completely occluded, the breathing entirely through the mouth for some days. We had two cases of laryngeal croup, one of which died. The other two deaths were in young children, and seemed to die from the severity of the disease. They both had convulsions at the start, and stomach very irritable. The treatment was: Tr. ferri chlor., quinine and whiskey, with benzoate sodii applied locally. The treatment was given every one to two hours; the benzoate was applied early and often, the earlier the better. The treatment for laryngeal croup was ice externally, and the patient made to breathe the air off of slaking lime. The case that recovered expelled a complete cast of the larynx; he immediately breathed easy. Convalescence was slow but complete.

Dr. J. B. Wakefield, of Mount Pleasant, reports as follows:—

I have had during the past year fifty cases of parturition, forty-eight of which were natural, one a case of twins, arm presentation. The other case was an adherent placenta. In surgery I have had nothing of special importance, one case of amputation of arm, and the removal of an atheromatous tumor.

I have had two epidemics, one of smallpox, and one of diphtheria. The smallpox was introduced by a German family, convalescent when they arrived, and no care was taken to isolate them. The first case was an old lady living in the same house, and through the ignorance of two irregular practitioners, whose diagnosis was varicella, the disease was spread. I had charge of all the cases which subsequently followed, twenty-four in all, six of which died. Three of the remaining eighteen cases were varioloid. The disease was of a malignant type. The treatment in the main was as follows: Disinfectants were used extensively. The diet consisted of broths, milk, lemonade, and barley water. Tepid sponging was performed daily. Diarrhœa was present in four-fifths of the cases, which I combated with hyoscyamus, chalk, catechu, and bismuth; as an external application I used zinc oxide and cosmoline.

As to the other epidemic, I have treated twenty-six malignant cases the last year, fourteen of which died. My treatment has varied greatly, and I am undecided to a certain extent as to the best treatment in malignant diphtheria; as to calomel I have never had experience enough with the drug to form an intelligent opinion. I have used every drug I thought would cure or modify the dis-

ease, with poor success. However, after trying a host of remedies, I have had the best success with stimulants. I believe alcohol and carb. ammonia will do more towards the cure of a case of malignant diphtheria than any drug I have yet found.

Dr. KLINGENSMITH, of Derry Station, reports:—

The unsatisfactory results obtained in the management of diphtheria in my practice, during the past eight years, by the ordinary or expectant plan of treatment, have recently caused me to look about for other remedies more definite and specific in their action. I have recently read the little book written by the late Dr. W. C. Reiter, and have concluded to give his plan (the calomel treatment) a fair trial.

On Sunday, April 10th, I was called to see a male child twenty-eight months of age, of a hitherto good healthy organization. Upon examination I found the pulse rapid and irritable, skin hot and dry, and the voice husky, with a croupy cough. The tonsils and a portion of the fauces were covered with a thick, tough, whitish-yellow exudation; while the glands at the angles of the jaws were somewhat enlarged and tender. I at once ordered twenty grains of calomel, which were followed by ten grains every hour, until the third day, when the membrane began to separate at the edges, when the mercurial was discontinued. During the first three days of the treatment, a total of seven hundred and twenty grains of calomel was given, after which a solution of chlorate of potassa was administered every two or three hours for a few days. From the third day on, there was a gradual improvement in the case, and by the sixth day the membrane had separated entirely. The child has perfectly recovered, and the exhaustion which we are accustomed to meet with in cases of such severity was entirely absent. The mercurial used in this case was the English calomel, and was given by filling a teaspoon half full of cold water, then dropping the medicine upon it, after which it was placed well back in the mouth of the patient. As you will see, my experience with this plan of treatment is based but upon one case, but when I take into consideration the gravity and malignant type of the disease, as manifested in this particular case, and the happy results accomplished, I cannot do otherwise than add my testimony in behalf of the plan pursued, and suggest for it a fair and impartial trial by my professional brethren.

Dr. LEMUEL OFFUTT, of Penn Station, communicates the following on the Treatment of Diphtheria:—

September 6, 1880, I was called to see Daniel G., aged about nine

years. Found him suffering from rather a severe attack of diphtheria. Treated him with iron, chlorate potassa, quinine, and stimulants. He recovered in about three weeks. Treated six other cases in the same way immediately after; all recovered in from two to six weeks. Those cases which followed during that epidemic took on a more malignant form. Nearly all of about twelve cases died under the same treatment, sometimes slightly varied with local applications to the throat. There were a few other cases in the locality treated by other physicians, who had about the same want of success as myself; some of these cases were treated with sulphuric acid, but with no better effect.

About this time Dr. J. W. Anawalt, of Greensburg, called my attention to an article in the *New York Record*, by Dr. W. C. Reiter, of Pittsburgh, claiming calomel as a specific for diphtheria. As everything else had failed, I concluded to try calomel. Was the next morning called to see the third and last child of a family, a little girl, five years old, who became ill during the night. I saw her at $7\frac{1}{2}$ A.M. So intense was my sympathy with the family, I felt unwilling to take charge of the case, feeling sure she would die. I asked for a consultation, and suggested Dr. Reiter; they wanted Dr. James McCann, and I assented; he arrived about 2 P.M. In the mean time I had prescribed calomel, gr. x. every two hours, with solution of chlorat. potass. Dr. McCann approved of treatment, except he advised the calomel to be given in 8 gr. doses every hour, which was done. Patient continued to grow worse, and died next morning about five o'clock, just twenty-two hours after I first saw it. I actually thought here the calomel had hastened, if not altogether caused death. I afterwards learned the child did not get the medicine regularly at all. Did not employ calomel during the remainder of that epidemic; only had a few more unimportant cases, which would have recovered on any treatment, or, in truth, with none at all.

In the early part of the winter of 1881 and 1882, an epidemic infested Penn Borough, in which, notwithstanding the use of potassa chlorate, potassium iodide, quinine, bisulphate of soda, tincture of iron, tincture of iodine, a host of local applications, and the knife, fifteen died, $33\frac{1}{3}$ per cent. About this time I became personally acquainted with Dr. Reiter. After an interview with him, in which he related his actual experience with calomel in the treatment of diphtheria, I concluded to try it again, and to follow closely his instructions in detail.

In a few days I was called, at 10 P.M., to see a boy, aged 23 months, who had been sick three days. Found him in a terrible

condition; so restless I could not take his temperature; had not slept a moment for more than twenty-four hours; pulse too rapid to count; skin dry; breath exceedingly fetid; and cervical glands very much swollen. There was a great deal of exudation about the throat, but none in the larynx. I felt certain that with any treatment I had ever used he would die. This fact, more than my faith in calomel, induced me try it, as recommended by Dr. Reiter. I gave a scruple of English calomel (no other answers near so well), and this is the mode of administering it: Put the calomel loosely on a tablespoonful of cold water, do not stir it up, but open patient's mouth wide, put the spoon well back over the tongue, and simply tumble the water and calomel down the throat. I then ordered ten grains to be given every hour, until my return, and impressed on the mother the necessity of seeing that the child got the medicine regularly. Gave also chlorate potass. solution occasionally; allowed nothing else to be given except plenty of cold lemonade, rice and barley water. I saw him next morning at eight; he was sleeping soundly, and had been since four o'clock, except when he was aroused to get his powders; his pulse was much better; temperature 102°, and skin moist. No apparent change in the exudation except it appeared to have less vitality, and had not spread at all. Continued same treatment until I saw him at 9 P.M. Little if any change; bowels had been moved twice; was sleeping most of the time; continued treatment until next morning, when I saw him at nine; temperature $100\frac{1}{2}°$; pulse good; swelling abating; exudation exfoliating; bowels moving freely; condition greatly improved; then gave powders every two hours; no other change in management. Saw him at 10 P.M., forty-eight hours after treatment began; was doing well. Continued treatment until I saw him again, just sixty hours after treatment began; was then unable to find either fever, fetid breath, restlessness, or membrane; glands slightly enlarged. After having taken more than an ounce and a quarter of calomel in sixty hours, he was quite comfortable. I then ordered a dose of castor oil, after which I gave him milk and lime-water for a few days, then cautiously increased quantity and variety of food until he was well. Discharged the case on the sixth day.

May 3d was called to see Harry B., aged six years; found he had diphtheria; a grave attack; treated him as I did the case just spoken of; the membrane was gone in fifty-six hours, and swelling in seventy-two; but, at the end of the tenth day, through gross negligence on the part of the parents and myself, he died of nephritis after the diphtheria had been cured.

The next case was Mike B., aged four years, who had been ill for

five days before I saw him; he refused to take medicine at all; consequently died in forty-eight hours. Four of the same family had it, and quite as severely at the start as the one that died; yet they all recovered remarkably quick. Next attended the family of Jacob B.; five of whom were afflicted, and with as much severity in the onset as any cases I have ever attended; they all recovered in a week. My next cases were adults, sisters, who recovered speedily from severe attacks.

In November, 1882, was called to see James B., aged sixteen years, who had been ill nine days; parents supposing him to be having "quinsy;" found him nearly dead; the membrane literally covered the whole throat, mouth, and nares; he was too feeble to sit up, and unable to lie down; put him on calomel, and it removed all membrane in forty-eight hours, and rendered him comparatively comfortable; then put him on tonics and stimulants. He died suddenly, one night, about a week afterwards; he seemed to be improving the forty-eight hours previous to death; evidently died of blood-clot. I attended six other members of the family, all of whom were younger, and all recovered, except one girl, who refused to swallow anything at all; there being no nurse there who could give her extra attention; she lived without tasting food or stimulants for about three weeks, then died. We only got one or two doses of calomel in her. I next attended three children of Leb. G.; all recovered in less than a week; also two of Jacob G., with same good results.

The other cases I treated during same epidemic, with same results, are as follows: Eliza H., aged 9 years; Maud H., 2 years; Mary F., 6 years; Lillie C., 6 years; Chas. C., 8 years; David C., 4 years; Mrs. R., adult; Maud A., 11 years; a boy of same family, 16 years; Sadie B., 10 years. Alice Myers, aged 16 years; saw her at 10 P. M., temperature 106°; pulse too fast to count; glands very much enlarged; throat heavily coated; skin dry, and restless; been sick three days. Treated her as I did the rest; next day, at 10 A. M, found her temperature 101°; pulse 110; she was feeling easy, having slept the six previous hours; membrane discolored; saw her at noon next day, membrane entirely gone; no fever; and said she felt well, only hungry. Discharged the case in another forty-eight hours.

In conclusion, I will say, that, while Dr. Reiter may have been mistaken in his theory of the *modus operandi*, still I do believe he was correct in his estimate of its therapeutical value, and I firmly believe the day is not far distant when calomel will be relied upon as being as much of a specific in the treatment of diphtheria as quinine is in malaria.

REPORT OF THE YORK COUNTY MEDICAL SOCIETY.

I TAKE pleasure in recording the fact that this Society is prosperous. The monthly meetings continue to be held in the York Hospital and Dispensary Building, they are well attended, and ably presided over by our worthy president, Dr. G. P. Yost. Judged by the many reported cases, as occurring in practice, the discussions of medical questions, and reading of papers, it is manifest, that the members are becoming more and more interested in the objects of the Society. Besides these monthly meetings, the members have arranged among themselves, that one or more of their number shall take monthly turns in visiting the Hospital once each day, and such physician, whilst on duty, shall have absolute control of all charity cases in the wards of the Hospital, and over all poor out-patients, who may apply for relief, during the regular hours of the attending physician; through this arrangement, an opportunity is often afforded of presenting before the Society some interesting cases; and thus, by adding clinical advantages to the regular business of the Society, tends very much to make the proceedings pleasant, instructive, and of incalculable value.

Whilst there was much sickness and many deaths prevalent throughout the county in the winter and spring months, and our doctors were kept busy, yet I am happy to state that death did not invade the roll of our membership. During the year eight new members were admitted, and the Medical Examiners passed four applicants, as qualified to commence the study of medicine, and refused two.

Of the cases reported and presented, I note the following:—

Dr. J. W. Kerr presented a "Cancerous Uterus," and Dr. M. J. McKinnon "A Foreign Substance," which he removed from the ear of a child; Dr. I. C. Gable exhibited a "Cancerous Liver," with an interesting history of the case; Dr. W. C. Stick reported a case of "Pleuro-pneumonia with Emphysema," occurring in a child aged two years; Drs. McKinnon and C. F. Spangler presented a case of "Successful Skin-grafting;" and Drs. Melsheimer and Wiest, each a case of "Locomotor Ataxia." Of the medical questions presented

for discussion, I especially name, "Bandaging after Delivery," and the action of "Salicylic Acid" in the treatment of rheumatism. Other subjects, interesting to the profession, have from time to time been discussed.

The following is a list of papers read; those marked with a [*] were sent to medical journals for publication; the others, which are herewith forwarded, are at the disposal of the Publication Committee:—

On "Typhoid Fever," by Dr. J. A. Armstrong, Hellam P. O.

* On "Puerperal Bandaging, by Dr. E. L. Melsheimer, Davidsburg P. O.

* On "Typho-malarial Fever," by Dr. J. Deisinger, Hellam P. O.

On "Scarlatina," by Dr. J. A. Gladfelter, Seven Valleys P. O.

On "Whooping-cough," by Dr. G. W. Bahn. Spring Grove.

* On "The Calling of the Physician," by Dr. A. P. T. Grove, Dallastown P. O.

On "Hygienic Treatment of Sick," by Dr. J. M. Hyson, Red Lion P. O.

* On "Abscess in Dorsal Region communicating with the Chest," by Dr. Jacob Hay, York P. O.

* On "Puerperal Eclampsia," by Dr. I. C. Gable, York P. O.

* On "Hydrocephalus," by Dr. C. F. Spangler, York P. O.

* On "Sleep and Dreams," by Dr. Wm. S. Roland, York P. O.

On "Variola as it appeared in York," by Dr. W. H. Wagner, York P. O.

On "Diphtheria," by Dr. B. F. Spangler, York P. O.

From the above, it will be noticed, that the average has been one essay at each monthly meeting of the Society, when, with the present membership, it should have been doubled.

Respectfully,
WM. S. ROLAND.

Dr. W. H. WAGNER, of York, communicates the following:—

Statistical Report of Variola during its late appearance in York, with views on the Treatment of the same.—In writing on this subject I am unable to give anything of much importance, except that which corroborates facts given by authors, and other physicians who have treated the disease. There are, however, a few points worthy of consideration; these are prevention and treatment.

Symptoms.—The most prominent symptoms in the different stages are as follows: The first stage, or stage of invasion, is one of great importance. It presents itself with chills, high fever, followed by profuse perspiration; cephalalgia, heavily coated tongue, nausea,

and vomiting; pain in the limbs and loins, with a full, frequent, and tense pulse, such as is generally found in fevers. The chill, fever, headache, and pain in the loins, are found in the majority of cases, especially the severe ones; but the nausea and vomiting are not so frequent, and the perspiration is found only in a limited number; but if this continues or recurs frequently up to the maturity of eruption, it is a point in diagnosis, compared with other eruptive fevers. The bowels are usually constipated, there may be occasional diarrhœa, especially in young children; I found this in two cases only, these being children about a year old, which had been teething, and had slight diarrhœa prior to this disease.

Convulsions often occur in children, especially during the development of the disease; we may have them in adults, but they are not common. I had them in three cases; in these the convulsions continued until the eruption appeared. Delirium is a symptom of quite frequent occurrence, passive generally, but active in some, especially where the mouth, throat, and nostrils are invaded, and also during the secondary fever. High fever, an early and profuse eruption, with much delirium, are indications of a severe attack.

The eruption makes its appearance about the second or third day, although there are frequent exceptions, in some cases not until the fifth day. The more the delay in eruption the milder the attack. As a rule, it is first seen on the face, often on the lips; there are exceptions, especially in children. Flint and others state that it is exceptionally first observed on the genitals, nates, or loins. I found this in several small children. In one, a few years old, which had been vaccinated a few days before the fever set in, it was first seen around the vaccination. In a child four weeks old it was first noticed on the fifth day, and on the feet.

In the discrete form, as well as in the varioloid, there are very slight, if any, fever symptoms after the eruption appears, while in the confluent variety there is more or less remission. The secondary fever, absent in the milder forms, is generally very high in the confluent, and the delirium active. In some the eruption appeared at the right time, but the fever remained high, the delirium becoming more active, the vesicles presenting a lardaceous appearance, partly disappearing, the serum becoming thicker and more pus-like, and the pustules having no areola. Da Costa says, "These patients invariably die." Other physicians tell me of similar cases with like results. I was successful in two of these cases by quieting the delirium and procuring reaction. I would judge that this peculiarity in eruption is due to exposure, as it was noticed only in those who became very delirious and exposed themselves.

In the suppurative stage, we have a sudden change. High fever, rapid pulse, more active delirium, great uneasiness on account of the severe burning pain, these symptoms are aggravated only in the confluent variety. At this time, too, we have tumefaction of the face and eyelids, and considerable swelling of the extremities, which is due, no doubt, to great inflammation, and the kidneys not acting. Crusts form about the eleventh day of the eruption, about the thirteenth or fourteenth day after the first symptoms. Desiccation begins a day or so later, though in some it is noticed earlier. At this time the skin exhales a sickening odor, which is almost unbearable by the attendants, even the patients suffer from it. The depth, size, and abundance of the pustules has a great deal to do with the pitting. In some, where the vesicle is not broken, the fluid contained is absorbed and very little pitting is noticed, this requires more time and causes great uneasiness on the part of the patient. In a few cases the vesicles were filled with blood, which being absorbed caused blood poisoning. These patients vomited blood, and the urine and feces were also mixed with it.

Complications, such as pleurisy and pneumonia, are of frequent occurrence, and in some continual and profuse epistaxis. In those where the eruption was grouped, large ulcers and abscesses formed. One lady miscarried in the seventh month; the lochia ceased, but reappeared five days afterward. The patient recovered.

The *duration* of the disease, according to Flint, is from seventeen to twenty-four days. In my cases it was about the same, rather the latter. The only exception of importance in eruption was where it appeared on the feet first.

Diagnosis is most difficult the first few days and in the first cases, where we may find trouble to diagnose between it and some of the eruptive fevers, such as typhoid and scarlatina. After the eruption appears, diagnosis is easy. Absence of vaccination and other cases in the vicinity are strong points favoring easy diagnosis.

Prognosis and mortality.—Complications influence mortality. Shock to the system generally causes death about the time of eruption. The extremes in age are most fatal, most deaths occurring under twelve years. Marked delirium, pregnancy, pleurisy, and pneumonia are generally unfavorable. Of the 34 cases which I attended, 20 were confluent, 8 discrete, and 6 varioloid. All the deaths (ten) were confluent. The number of cases was 72, of which 22 proved fatal. Of these, 46 were variola, 26 varioloid. Those who had never been vaccinated were 56; 8 were vaccinated after fever set in, and had only varioloid; only 4 had any marked signs of vaccination in

childhood. A child, ten years old, whose mother had the disease when a month pregnant, the child having been vaccinated several times without effect, took it in the most virulent form and died.

Treatment.—Isolation and removal of unnecessary furniture and bed fixtures, and vaccination of all in the family. I used the expectant plan of treatment, kept the patients clean and cool, gave plenty of lemonade and other cooling drinks, would even allow small quantities of ice. A mild laxative every few days is of much benefit; after the fever and delirium, I used alcoholic stimulants and hydrate of chloral, especially in throat symptoms. Opium arrests the secretions around the throat, and may cause congestion of the lungs, which may result fatally by suffocation. The only opium I used was in cases where the patient suffered pain, or in pleuritic symptoms. Sustaining diet, as milk, eggs, milk punch, and after the fever almost any kind of food,—except in the confluent variety, where we must be careful on account of the secondary fever.

Prevention.—The only true preventive is inoculation; vaccination is almost equal to this, and, if it does not protect altogether, it does so to a certain extent. The great trouble in regard to vaccination is, that it is often done by persons who are not competent. Physicians are often misinformed, as I had a number who were positive of protection, and on examining, I found there was no sign at all of vaccination. Some have an idea that where vaccination does not take, smallpox will not take so easily. I had fourteen cases of smallpox that had been vaccinated unsuccessfully, some of them as often as five times. Hunter states, "Of 297 exposed persons who were vaccinated, there was no case; of 91 others, 2 mild attacks, and of 215 unprotected and exposed, there were 200 cases of smallpox." In an epidemic in Philadelphia, according to Da Costa, "65 per cent. died that were not vaccinated, 799 vaccinated contracted the disease, 16 per cent. died, and only 9 per cent. of these had marked signs of vaccination, and the other 7 per cent. had no signs." He is also authority for the following: In Prussia, out of 30,000 persons that were vaccinated, only two took the disease. In Austria there were only 40 deaths in 20 years from smallpox. In the London Smallpox Hospital there was not a single case of smallpox amongst the nurses in 34 years. Out of the 72 cases in York, there were very few that had any signs of vaccination. In several there were slight marks, and these had only varioloid. All those who had marked signs of vaccination in families where the disease broke out escaped, some of these being with them the entire time, even sleeping with the sick, and did not contract the disease.

Dr. J. Allen Gladfelter, of Seven Valleys, read before the County Society Feb. 1, 1883, the following address:—

The subject I have selected is *Scarlatina*. My remarks are principally based upon the pathology and treatment.

What is scarlatina? It is described as an eruptive fever contagious and infectious in its nature. One author says it is caused by a specific virus; another, by certain fomites; again another, by infectious miasms. But none, to my knowledge, attempts to say what the real poison consists of, and in what way it acts upon the organism. They say it causes a scarlet or rose-colored eruption, fever, etc., but do not inform us how it is brought about. I am of the opinion that it is an infectious poison, and that it primarily irritates the nerve-centres of the vaso-motor nerves, as I shall try to show. I will first dwell upon the probable cause of the erythema of the skin, and secondly upon the infiltration.

We must understand that erythema of the skin, or hyperæmia of any organ, can only be due to an abnormal quantity of blood in that locality, either in active or passive hyperæmia. Hence we know what the diffuse discoloration denotes. It expresses the fulness of the capillaries. The question now arises, from a pathological standpoint, what is the cause of this fulness or dilatation of the capillaries? In order to make my remarks comprehensible, I will be obliged to give the minute anatomy of the capillaries.

It has been demonstrated by Eberth, Aeby, Aurenbach, and others, that the capillaries are not mere lifeless elastic substance, but that they are composed of flat nucleated cells, and that these cells (forming the coat of the vessels) can be made to contract or dilate, and when dilating will absorb the fluid, and when contracting will again discharge; showing that the lumen of the vessel is changed (independent of the arrangement of the circular muscular fibres), depending upon the forces brought to act upon them through the spinal cord, showing that there *must* be some nerve force controlling these cells even if histologists have not been able to trace the termination of nerves in the vascular walls. Histologists, in their recent researches, have discovered two distinct sets of vaso-motor nerves, namely, vaso-dilators and vaso-constrictors; the latter exerting a continual influence upon the capillaries, while the former, as far as at present is known, act only under certain influences, as when certain irritants are introduced into the system or when irritated mechanically. Hence irritation of these vaso-motors causes the capillaries to dilate, and as long as the irritation lasts the dilatation continues. The above is the latest theory I know of, but it seems altogether probable to me that the vaso-constrictors and

vaso-dilators bear the same relation one to the other in governing the capillaries as do the pneumogastric and sympathetic in governing the heart.

I have just remarked, that an irritation of the vaso-dilators causes the capillaries to dilate, in consequence of which we have hyperæmia, which lasts as long as the irritation is continued; and what is the effect upon the capillaries? In dilating they lose their tone by distension, and the walls become thinned and well adapted for filtration. Now, as pathologists have not yet been able to ascertain the exact nature of the poison, I claim that we as physicians stand on an equal level with them in regard to this matter and have a right to advance our own theories, and until proven to be wrong, we may claim to be right. Hence my theory is, that the hyperæmia of the skin, mucous membrane, and organs is brought about by this poison acting upon the nerve-centres of the vaso-dilators, an irritative poison causing the dilatation of the capillaries, and we have the characteristic discoloration of skin. You ask what caused the elevation of the temperature? Of this I must say as of all other diseases accompanied by an elevation of the temperature, that it is a tissue metamorphosis, and, besides, it is evident that the increased flow of blood through the dilated capillaries is another prime factor.

I will now give my opinion as to how the transudations are brought about, or the cause of dropsies following scarlatina. The kidneys, as well as other organs, and especially the mucous membrane, are supplied with a countless number of capillaries, and here we have the same phenomena as in the skin—irritation of the vaso-dilators, dilatation of the capillaries, congestion of the mucous membrane, interfering with its function, desquamation of its epithelium, similar to the desquamation of the skin,—for in microscopical examination we find the uriniferous tubules loaded with the epithelium; and what follows? Albuminuria, general dropsy. However, I do not believe that this is the sole cause; but that this poison has so irritated the nerve-centres, and so impaired the walls of the capillaries by continual distension, as to result in a filtering of the watery portions of the blood through the coats of the capillaries into the connective tissue or serous cavities.

In reviewing the treatment laid down in our text-books, we find that each author has a favorite treatment of his own,—purging, bleeding, diuretics, diaphoretics, warm and cold baths, etc.; most of them advocate alcoholic stimulants, and unite in condemning any drug having sedative powers. It seems to me that the symptoms have been treated instead of the disease. Now, if we are unable to know or tell the real cause of the disease, why follow in the old rut

of our predecessors in the treatment of so grave and fatal a malady? Has their treatment been attended with much success? I answer, *no.* Then, are we not justified in seeking for some treatment that may prove more beneficial? If alcoholic stimulants, carbonate of ammonia, etc., have failed in giving good results, what *shall* we use?

I emphatically say *sedatives;* and, if there is a *sine qua non*, I say it is *veratrum viride.* I have read quite a number of works and consulted practitioners in regard to the physiological action of veratrum viride, and I am confident that the exact *modus operandi* is not known. That it keeps in check any vehement heart action is well known, but, when we come to ask how does it act in bringing it about, we are told, it acts upon the nerves and in that way diminishes the number of beats. It is thought by some to act upon the pneumogastric, and by others upon the cardiac ganglion. The opinion of Prof. Harvey S. Bird, of the Baltimore Medical College, more nearly coincides with my views as to its action than any theory I have yet read or heard of. He claims that the direct action is upon the cardiac motor nerves. I heartily agree with him, providing he means the vaso-motor, and I think he does. But I also believe that the action is not only upon the vaso-motor nerves of that region, but upon the vaso-motor nerves throughout the entire body. Now, if the poison of scarlatina acts upon the nerve-centres (and I claim it does), is it not probable that veratrum viride may act as an antiseptic to the poison, convalescence and recovery taking place just as does malaria from the use of quinia?

During the year 1881, when scarlet fever was depleting families throughout York County and in villages adjacent to the one I reside in, I had my share of patients. As the epidemic was raging through the southern section of the State and in Maryland at the same time, it is quite probable that the type was the same in my route of practice as it was throughout other sections. Out of 60 patients treated by me, 3 succumbed, one to whom no veratrum viride was given (my first case); the second, having had scarlet fever five days before any medical aid was given, dying a few hours after my first visit; and the third died with membranous croup (diphtheritic). I wish to be distinctly understood that the success was not due to any skill or tact of mine, but wish to have the credit given to the remedy that was used, namely, tincture of veratrum viride; and in no case do I remember of having any sequelæ, with the exception of one in whom slight dropsy resulted, and in this case the drug could only be used at the discretion of the patient (a stubborn boy).

I will give the notes of one of my cases, and then leave the

matter with you to judge if there is any use for veratrum viride in the treatment of scarlet fever. But first hear what Dr. J. Lewis Smith says in reference to one of the complications. "The most serious complication is clonic convulsions. These occasionally occur at the commencement of the disease, before the appearance of the rash, and many then recover; but I have not seen, nor have I heard in my intercourse with physicians, of *any* case which recovered when convulsions occurred after the complete development of the eruption." If Dr. Smith has not by this time heard of such recoveries, he can now be supplied with a number of cases.

August 10. 9 o'clock P. M., I was called upon to prescribe for a boy four years of age, who had complained of feeling bad all day. The symptoms were described by his father as well as he could, saying he had heat, and would scare when going to sleep; that he had vomited once. There being no scarlet fever in that neighborhood, I did not suspect it to be a case of scarlet fever, but thought it might probably be some ailment incidental to the summer season. I ordered twenty drops of sweet spirit of nitre with five drops of tincture of digitalis to be given every two hours.

11*th*. On my arrival at 2 A.M., five hours after filling prescription, the child had clonic convulsions. Rash over entire body, with pulse-rate so frequent it could not be counted, and let me assure you that the estimate is low enough at 250 per minute. Respirations 34 to the minute; temperature $104\frac{1}{5}^{\circ}$ F. Being four miles from my office, with no suitable remedy with me, I continued the treatment until morning. 9 A.M. Respiration 40; temperature 104°; pulse-rate 210; comatose; capillary circulation languid; no convulsions. Treatment: Tinct. veratrum viride, gtt. j. every one and one-half hours, with a solution of hydrate of chloral for convulsions, and a spray to throat of chlorate of potassa, glycerine, and water. 6.30 P.M. Respiration 40; pulse 140; temperature $103\frac{1}{10}^{\circ}$; semi-comatose; vomited twice; diarrhœa; and has had convulsions once, ten minutes' duration. Same treatment continued.

12*th*. 7.30 A. M. Respiration 28; pulse 116; temperature $98\frac{3}{5}^{\circ}$; slightly comatose; vomited twice; evacuations three; rash becoming fainter with a little desquamation of the skin; child having been cheerful during the night; eats moderately; same treatment continued at intervals of two hours. 6 P. M. Respiration 20; pulse 126; temperature $100\frac{2}{3}^{\circ}$; perfectly conscious; vomited once; evacuations two; eats moderately; some thirst, drinks milk; capillary circulation good; no change in treatment.

13*th*. 7.30 A. M. Respiration normal; pulse 98; temperature 99°; slept well during the night; vomited five times; evacuation, one;

rash disappearing and skin desquamating; treatment continued at intervals of four hours.

14*th*. 10 A. M. Pulse 96; respiration and temperature normal; during the twenty-four hours vomited once, and had one evacuation; sleeps well; eats moderately; treatment same, in diminished quantity.

16*th*. 7.30 A. M. Five days after my first visit; respiration, pulse-rate, and temperature normal; sleeps and eats well; desquamation nearly completed, and child apparently well, with no sequel following.

Dr. G. W. Bahn reports the following cases:—

Diphtheria complicated with Croup.—Was summoned, on the evening of December 20th, 1880, to attend Annie C., aged ten years, who was suffering from an attack of diphtheria which was now well developed; both tonsils covered with a thick membrane, and since 12 o'clock that day, was being complicated with croup. I found her pulse at 140°, extremities cold, and her whole body covered with a cold sweat. Taking into consideration the gravity of her symptoms, as well as the complication of troubles, I would not have been surprised had she died that night.

I at once prescribed an emetic, which was to be followed by another, and even a third, if necessary. Being impressed with the importance of bringing the system under the influence of an alterative as quickly as possible, I prescribed calomel and ipecac. powders, to be given at intervals of two hours, and only to be interrupted by the administration of an emetic whenever, in their judgment, one seemed required. I also ordered the inhalation of steam from hot water and vinegar, and the application of tincture iodine to the front and sides of the neck.

When I arrived the following morning, I learned that she had had a very restless night, and several very severe paroxysms of dyspnœa. Her upper and lower extremities seemed perfectly cold, skin moist, breathing at all times difficult, and there was not the least indication of any improvement. She thus continued, without any apparent change, except the usual exacerbations of dyspnœa on the approach of night, until the morning of the 23d. Notwithstanding that she was now resting comfortably, and breathing quietly, her pulse was still at 140°, and the extremities cold. The parents of the child, fearing that this state of rest would prove but temporary, requested me to call again in the evening. I did as requested, and found that their fears were being fully realized. She was tossing herself constantly from one end of the bed to the other, and in her agony, grasping and carrying her pillow with her. Her face wore a deadly pallor, while the lips were somewhat of a blue, and the feat-

ures betrayed the greatest anguish imaginable. Thus she continued, with scarcely any amelioration of her symptoms, until after midnight.

One of the results of this prolonged paroxysm of suffering was, that she stoutly resisted the administration of a mixture of potass. brom. and glycerine, with which I had hoped to bring these recurring spells under control. This defeat of my plans happily proved but temporary, for, as the paroxysms began to subside, the child again seemed inclined to yield to the entreaties of her parents. And, notwithstanding that this mixture was given at regular intervals, from 2 o'clock in the morning, until evening, there was every indication of her having a very uncomfortable night. Having reason to believe, however, that she was receiving some benefit from the mixture, I determined upon a more heroic use of it, giving her two doses, only a half hour apart. These two, and several additional doses during the night, had the effect of affording her permanent relief from the croup.

All attempts to produce emesis during her illness had proved futile. Such a want of susceptibility to the influence of emetics, I usually regard with a great deal of apprehension.

Stimulants and nourishing diet were ordered in good time, but, the patient being very obstinate, no amount of persuasion could induce her to take of either, in sufficient quantities to be of any material benefit to her. I thereupon ordered injections of beef tea and stimulants as a substitute; but these, too, she resisted to such a degree, that I could not prevail on the parents to persevere in the use of them. While her extremities had regained something of their natural warmth by the 28th, there was no other appreciable sign of improvement since the disappearance of the croup, and all trace of deposit on the tonsils, for she seemed still to suffer from extreme prostration, complete loss of voice, weak and irregular pulse. Thus she lingered on until the second of January, when she died.

In the treatment of this case, I did not confine myself exclusively to the remedies spoken of as having been employed, either internally or locally. Preferring not to become irksome, by going too much into details, I have given you only that portion of the treatment which I had reason to believe accomplished most good, and saved the patient from perishing while the disease was at its height.

Whooping Cough.—Having within the last year treated thirty-one cases of whooping cough, I found in these cases, that after an incubation of about six days, with symptoms much like those of acute bronchitis, including fever of variable degree, the attack commences, soon showing its peculiar character. This is a spasmodic

and paroxysmal cough. For hours, the patient may be apparently well, and then, often with a premonitory sensation which leads the child to run to its mother and nurse, or, if at night, to sit up in bed, a fit of coughing begins, and lasts several seconds or minutes. It generally consists of a rapid succession of short but violent expiratory efforts, with scarcely any intervals of inspiration, at the close of which air is taken in by force through the contracted glottis, making a whooping sound, whence the name of the disease. I find that all who have it do not whoop; but the paroxysmal character of the cough is pathognomonic.

Expectoration, I find, is often very copious, of thick mucus, but I never found lymph or pus to be expectorated, as some authors state. Vomiting of food and mucus occurs very often during the spells of coughing. I have seen children become very much exhausted, but not to a fatal end, although I believe they sometimes do; or, unless from complication or previously feeble constitution, death does not very often occur. I never knew asphyxia to be fatal during the paroxysm, though it sometimes is very threatening. There may be many variations of severity in all the symptoms in the course of an attack.

The *duration* of whooping cough is seldom less than six weeks, although, in seven out of thirty-one cases, it lasted only about three weeks, where the attack was not so severe. Four cases lasted nearly nine weeks, and one nearly eight months.

The *complications* we may often expect to find are pneumonia, collapse of the lung, and phthisis. Seven cases were complicated with pneumonia, and one in which the membrana tympani of the left ear was ruptured, but not one case was fatal. The eyes often become bloodshot also.

The cause.—There is no question of the contagiousness of whooping cough. Generally, it occurs but once in the same person; although second attacks do occur. In one case, a boy of about fifteen years had unmistakably a second attack, but not as severe as the first one. Whooping cough, like scarlet fever and measles, is most often met with in children; but this is merely from their susceptibility under exposure. Adults also have it. Belonging to the zymotic diseases, caused by a specific morbid poison, the spasmodic nature of the cough points to the nervous system, as in main part the seat of its action. Yet the expectoration, as well as early (and occasionally afterwards) febrile symptoms, shows that bronchial inflammation exists, secondarily at least.

Treatment.—Mild cases need only care to avoid exposure to

damp and cold. After the first few days, if there be no fever nor soreness of the chest, the patient need not be kept in the house in good weather. Indeed, he will cough least when most out of doors. When the cough at first is tight and painful, with little expectoration, syrup of ipecac. or squills (the former I prefer) may be given. As soon as the spasmodic character of the cough declares itself with some violence, the "milk" or tincture of assafœtida may be given, with or without other expectorants, according to the case. Severe cases may sometimes be quieted by belladonna or musk; but I have especially been satisfied with the effect of the fluid extract of hyoscyamus, in the dose of from four drops, in a child of ten or twelve years of age, down to the fraction of a drop at a time in a young infant. Clover infusion, I find, is very useful, also the cochineal and potassa mixture. Hydrocyanic acid, bromide ammonium (from two to twelve grains, at once, for a child), nitric acid, alum, and benzoic acid, are among the other remedies often employed to allay the violence of the cough. Application of a strong solution of nitrate of silver to the larynx has some advocates; I never tried it.

In protracted cases, counter-irritation to the chest and back of the neck may be required. In one case I met with great relief to the patient, upon the application of a small blister to the nucha. Tonics, also, are not unfrequently called for toward the end of the attack, in a feeble case, especially quinine, or tincture of bark (Huxham's), iron, or cod liver oil. There is very seldom need to restrict the diet in this disease, unless during the first week.

Dr. J. A. Armstrong, of Hellam, reports the following case of typhoid fever, followed by meningitis. It was obscure at first, but became quite distinct as it advanced:—

The subject was a child, three years and six months old. The first symptoms presented were chills, severe headache, dry and hot skin, tongue coated with a whitish fur, loss of appetite; and although delicately framed, had always been well before this time. This condition lasted for five days, the chills recurring every afternoon. Patient complaining of severe pain in the limbs. Thinking I had a case of intermittent fever, I gave quinine. Saw the child the evening of the next day, and found a continuous form of fever, without any intermission. Stopped the quinine, and as diarrhœa had set in I gave ipecac. and opium, which acted happily as far as the diarrhœa was concerned. In a few days after we had that low form of fever which characterizes a typhoid condition, with the rose-colored eruption appearing on chest and abdomen. Patient would speak when

aroused from his stupor. The tongue dry and red around the edges, the head being rolled from side to side, but seemingly unconscious, as if this action was involuntary, and with great regularity continuing throughout the disease; pulse feeble and frequent.

I suppose this is the condition which is found in what is called typho-malaria, but as that doctrine has apparently exploded, and as it has been found that the minute organism which gives rise to malarial fever is antagonistic to the poison of typhoid fever, I chose rather to think I had a case of typhoid fever, with the brain as the principal seat of lesion, although the glands of Peyer were very much affected, this being known by tenderness on pressure, especially in the right iliac region. Some tympanitic distension with a gurgling sound upon pressure with the hand. The patient closed the eyes as if to shun the light; I ordered the room to be darkened, but it had no apparent effect in causing him to open the eyes, which remained closed for more than two weeks. He spoke no intelligible word for three weeks; constantly slipping down in the bed; deglutition seemed difficult; urine scanty and involuntary, with rather an offensive smell; involuntary diarrhœa being frequent throughout the course, often causing anxiety. There was no bloody evacuation at any time. About the end of the fourth week there was paralysis of the left arm and leg. The pulse continued about one hundred, and never exceeded one hundred and twenty, at the time of examination. After a course of about five weeks, the tongue became moist; pulse less frequent, not more than ninety, and greater fulness; deglutition more easy, with a greater inclination for food; and I began to congratulate myself upon the recovery of the child.

The medicines used thus far consisted of quinine, citrate of magnesia, ipecacuanha, opium, oil of turpentine, rye whiskey in milk. I was called a few days after I thought the child was convalescing, with the injunction to come immediately, as the parents thought the child was dying. I hastened to the bedside, and found it lying on the side, with its head thrown backward, jerking of the limbs, eyelids apparently closed with force, contracted pupil, pulse irregular, not more than one hundred, slight effort at vomiting, features sunken, and haggard, hearing impaired, tongue coated with a whitish fur. I immediately gave five grains of bromide of potassium, which I continued for two days in three-grain doses, repeated every four hours. I met Dr. Kerr, who advised that the medicine be continued in the same dose as given. In a few days after the child was doing well, and eventually recovered; and is to-day more robust than he was before his sickness.

Dr. J. M. Hyson, of Red Lion, communicates the following paper on *Hygienic Treatment of the Sick*:—

There are two essentials requisite to the successful treatment of the sick: First, medical skill; second, good nursing. The former is necessary in order that the condition of the patient be fully understood, and the proper means be employed to effect his recovery. The latter is essential in order that all influences favoring the production and development of disease may be removed, the tendencies to restoration be promoted by every possible means, and the directions of the physician be properly observed. Without good nursing, the most skilful physicians fail in effecting a cure. If certain hygienic agencies are essential to the maintenance of health, how much more necessary that they be employed in sickness! If certain conditions cause disease, how great the necessity that such conditions be obviated and hygienic ones substituted.

Notwithstanding the importance of good nursing (which all must concede), in the rural districts it is frequently difficult to find a professional nurse, or if one can be obtained, it is often impossible for the invalid to procure her services, on account of the expense which must necessarily be incurred. Woman is generally selected for this important position, since she is best adapted to fulfil its duties. Her soft hand and soothing voice, her kindly, sympathetic, and provident nature, together with her scrupulous cleanliness, render her man's equal if not his superior in the capacity of nurse. There are circumstances, however, in which his services are indispensable; hence the necessity of being qualified to care for the sick. A nurse should be attentive to the requirements of physician and patient, for she sustains an intimate relation to both. She should observe the directions of the physician and faithfully perform them. In so far as practicable, let the patient's wishes be gratified. The senses of the sick often become morbidly acute, and those things which in health would pass unnoticed, in sickness are so magnified as to occasion annoyance and vexation. Sick persons are not all alike, and the peculiarities of each must be studied separately.

The sick-room should be as comfortable, cheerful, and pleasant as circumstances will allow. Let the room be large and airy, with high ceilings, and furnished with a stove—or, better, a fireplace. All articles of clothing and furniture, not necessary to the comfort of the patient, should be removed from the room, and in malignant or contagious diseases the carpets even should not be permitted to remain. The surroundings beget happiness or gloom, in proportion as they are pleasant or disagreeable.

The bed should not be of feathers, on account of their undue

warmth, which causes a sensation of languor throughout the system. A husk or sea-grass mattress, or even a straw bed, covered with a cotton quilt, is far preferable.

Pure air is necessary to the continuance of life. The air in the sick-room should be kept as pure as that without. That which is so necessary in health is indispensable in sickness. The importance, therefore, of a perfect and free ventilation of the sick-room cannot be too thoroughly impressed, and yet to properly secure this end, may call forth a considerable amount of ingenuity on the part of the nurse. A window should be open; but the current of air must not be allowed to blow directly upon the patient. This will permit the entrance of pure air from without, and the exit of the vitiated from within. The patient, if sufficiently covered in bed, is not liable to take cold from a proper ventilation of his room. The temperature of a room is no indication of the purity of the air. It is a prevalent, though mistaken, idea, that because a room is cold, the air must be pure. Cold is as readily contaminated with impurities as heat; so it is not sufficient that the room be kept cool, but the air, also, should be frequently changed.

Light is as necessary to health as is pure air. Banish either for any continuous length of time, and serious results follow. The strong, robust man, when deprived of light, soon degenerates into a feeble, sickly being. There are, however, conditions in which the patient should be screened from the light. Patients convalescing from acute, or suffering from chronic diseases, should receive the influence of light in the open air, and be in it several hours each day. *Light*, and pure air stimulate a healthful development, while darkness begets gloom, sadness, and disease.

Warmth is essential to the well-being of the patient, and it is necessary that a proper temperature be maintained in the room. Except in very warm weather, a little fire should be kept, and at the same time fresh air should be admitted from without, and thus a uniform temperature will be preserved. This arrangement is especially necessary in localities where great variations in temperature are experienced during the day and night. Persons suffering from chronic diseases, or those in feeble health, should conserve their vital energies by dressing warmly, wearing flannels next the skin, and carefully protecting the feet from cold and moisture.

The importance of *Cleanliness* cannot be too thoroughly impressed upon the minds of those who have the care of the sick. Filth is productive of disease and favorable to its development.

The Diet sustains a very important relation to health. During the progress of acute disease, the appetite is generally much im-

paired, if not entirely absent. It should then be the study of the nurse to devise such articles of nourishment as will be acceptable to the patient and suitable to his condition. His food should be light, nutritious, and easy of digestion. A return to normal digestion should be encouraged by selecting appropriate articles of food, and paying due regard to its quantity and quality, as well as to the manner and time of eating.

Sleep is nature's grand restorer. It is necessary in health, and doubly so in sickness. During sleep the vital energies recuperate, the forces are less rapidly expended, and the strength increased. It is the great source of rest and refreshment. Often a day's rest in bed, free from the cares and anxieties of an active life, is sufficient to ward off the approach of disease. If quiet and rest are essential to recuperation in health, their necessity in disease must be apparent. Life and death frequently depend on tranquillity and repose, and the least noise or confusion disturbs the sufferer and diminishes the chances for his recovery. In sickness, when the vital forces are low, the more natural rest and sleep the patient has, the greater his prospect for recovery. As a rule, a patient should never be awakened when sleeping quietly, not even to take medicine, unless in extreme cases.

> How many thousand of my poorest subjects
> Are at this hour asleep! O sleep, O gentle sleep,
> Nature's soft nurse, how have I frighted thee,
> That thou no more wilt weigh mine eyelids down
> And steep my senses in forgetfulness?—*Shak.*

PRESIDENTS AND PERMANENT MEMBERS OF THE STATE SOCIETY.

OFFICERS AND MEMBERS OF COUNTY SOCIETIES,

AND

ALPHABETICAL LIST OF MEMBERS OF COUNTY SOCIETIES WITH THEIR POST-OFFICE ADDRESS.

PRESIDENTS OF THE SOCIETY.

1848.	
*Samuel Humes, M.D.,	Lancaster County.
1849.	
*Prof. Samuel Jackson, M.D.,	Philadelphia County.
1850.	
*Wilmer Worthington, M.D.,	Chester County.
1851.	
*Charles Innis, M.D.,	Northampton County.
1852.	
Hiram Corson, M.D.,	Montgomery County.
1853.	
*John P. Hiester, M.D.,	Berks County.
1854.	
Jacob M. Gemmill, M.D.,	Huntingdon County.
1855.	
*James S. Carpenter, M.D.,	Schuylkill County.
1856.	
*R. La Roche, M.D.,	Philadelphia County.
1857.	
John L. Atlee, M.D.,	Lancaster County.
1858.	
*Smith Cunningham, M.D.,	Beaver County.
1859.	
*D. Francis Condie, M.D.,	Philadelphia County.
1860 and 1861.	
*Edward Wallace, M.D.,	Berks County.
1862.	
Geo. F. Horton, M.D.,	Bradford County.
1863.	
*Wilson Jewell, M.D.,	Philadelphia County.

* Denotes deceased.

	1864.	
J. D. Ross, M.D.,		Blair County.
	1865.	
Wm. Anderson, M.D.,		Indiana County.
	1866.	
*James King, M.D.,		Allegheny County.
	1867.	
Traill Green, M.D.,		Northampton County.
	1868.	
John Curwen, M.D.,		Dauphin County.
	1869.	
*Wm. M. Wallace, M.D.,		Erie County.
	1870.	
Samuel D. Gross, M.D.,		Philadelphia County.
	1871.	
*J. S. Crawford, M.D.,		Lycoming County.
	1872.	
A. M. Pollock, M.D.,		Allegheny County.
	1873.	
S. B. Kieffer, M.D.,		Cumberland County.
	1874.	
*Washington L. Atlee, M.D.,		Philadelphia County.
	1875.	
Crawford Irwin, M.D.,		Blair County.
	1876.	
Robert B. Mowry, M.D.,		Allegheny County.
	1877.	
D. Hayes Agnew, M.D.,		Philadelphia County.
	1878.	
J. L. Stewart, M.D.,		Erie County.
	1879.	
Andrew Nebinger, M.D.,		Philadelphia County.
	1880.	
John T. Carpenter, M.D ,		Schuylkill County.
	1881.	
Jacob L. Ziegler, M.D.,		Lancaster County.
	1882.	
William Varian, M.D.,		Crawford County.
	1883.	
Henry H. Smith, M.D.,		Philadelphia County.

PERMANENT MEMBERS.

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Abernethy, H. H.	Easton,	Northampton,	1883
Agnew, D. Hayes	Philadelphia,	Philadelphia,	1870
Ainey, David C.	New Milford,	Susquehanna,	1874
Albright, F. G.	Lancaster,	Lancaster,	1874
Alexander, H. M.	Marietta,	Lancaster,	1881
Alexander, J. F.	Centre Hall,	Centre,	1881
Alexander, J. W.	Canonsburg,	Washington,	1877
Alleman, Horace	Hanover,	York,	1880
Allen, E. P.	Athens,	Bradford,	1863
Allen, John M.	Chester,	Delaware,	1870
Allis, Oscar H.	Philadelphia,	Philadelphia,	1874
Allison, T. H.	Kittanning,	Armstrong,	1880
Allison, T. M.	"	"	1876
Alter, M. H.,	"	"	1881
Amick, J. H. B.	Schuylkill Haven,	Schuylkill,	1880
Ammerman, Alonzo	Danville,	Montour,	1877
Anawalt, J. W.	Greensburg,	Westmoreland,	1867
Anders, James M.	Philadelphia,	Philadelphia,	1883
Anderson, Joseph W.	Ardmore,	Montgomery,	1872
Anderson, William	Indiana,	Indiana,	1862
Andrews, Thos. H.	Philadelphia,	Philadelphia,	1876
Ansley, Wm. B.	Saltsburg,	Indiana,	1883
Arnholt, M. A.	Pittsburg,	Allegheny,	1873
Arnold, Herbert A.	Lower Merion,	Montgomery,	1883
Asdale, W. J.	Pittsburg,	Allegheny,	1868
Ash, H. St. Clair	Philadelphia,	Philadelphia,	1862
Ashhurst, John, Jr.	"	"	1881
Ashhurst, Sam'l	"	"	1876
Ashmead, William	Germantown,	"	1863
Atkinson, William B.	Philadelphia,	"	1862
Atlee, John L.	Lancaster,	Lancaster,	1868
Atlee, John L., Jr.	"	"	1881
Ayres, S.	Pittsburg,	Allegheny,	1883

NAMES.	POST OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Bacon, Daniel	Wellsboro',	Tioga,	1872
Bacon, M. L.	"	"	1879
Baer, B. F.	Philadelphia,	Philadelphia,	1883
Bailey, Wm. D.	Dillsburg,	York,	1873
Baker, Frances N.	Media,	Delaware,	1881
Baker, Washington H.	Philadelphia,	Philadelphia,	1879
Baker, W. A.	Hydetown,	Crawford,	1882
Baldwin, L. K.	Philadelphia,	Philadelphia,	1871
Balmer, A. F.	Brookville,	Jefferson,	1879
Bardwell, E. O.	Emporium,	Cameron,	1882
Barr, D. M.	Philadelphia,	Philadelphia,	1875
Barr, G. W.	Titusville,	Crawford,	1867
Bartholomew, H. L.	Warren,	Warren,	1882
Bartleson, S. P.	Clifton Heights,	Delaware,	1879
Barton, A. A.	Plains,	Luzerne,	1881
Barton, J. M.	Philadelphia,	Philadelphia,	1878
Batten, John M.	Pittsburg,	Allegheny,	1876
Baxter, Henry F.	Philadelphia,	Philadelphia,	1876
Bean, Geo. W.	Bainbridge,	Lancaster,	1878
Beane, W. H.	Middletown,	Dauphin,	1879
Beates, Henry	Philadelphia,	Philadelphia,	1883
Beaver, D. R.	Conshohocken,	Montgomery,	1875
Beck, J. N.	Sligo,	Clarion,	1877
Bell, S. D.	Barnhart's Mill,	Butler,	1876
Bennett, Alice	Norristown,	Montgomery,	1881
Berlin, J. O.	Chapman Quarries,	Northampton,	1881
Berntheizel, G. W.	Columbia,	Lancaster,	1877
Best, David	Meadville,	Crawford,	1868
Biddle, J. C.	Shenandoah,	Schuylkill,	1878
Bidlack, J. B. W.	Philadelphia,	Philadelphia,	1881
Birch, T. J.	Port Carbon,	Schuylkill,	1879
Birdsall, Samuel	Susquehanna De't,	Susquehanna,	1869
Bishop, H. M.	Sharon,	Mercer,	1880
Bishop, W. T.	Harrisburg,	Dauphin,	1881
Blachley, O. L.	Sparta,	Washington,	1879
Blachley, S. L.	"	"	1868
Black, H. M.	Strasburg,	Lancaster,	1880
Blackwood, Wm.	Lancaster,	"	1877
Blackwood, W. R. D.	Philadelphia,	Philadelphia,	1875
Blaine, J. E.	Pleasantville,	Venango,	1882
Blair, A. R.	York,	York,	1879

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Blair, J. M.	Fleming,	Centre,	1878
Blakeslee, W. R.	Harford,	Susquehanna,	1876
Bland, D. W.	Pottsville,	Schuylkill,	1870
Bloom, H. C.	Martinsburg,	Blair,	1879
Boal, G. Y.	Baden,	Beaver,	1876
Bockius, S. A.	Columbia,	Lancaster,	1881
Boker, Charles S.	Philadelphia,	Philadelphia,	1865
Bolenius, Robt. M.	Lancaster,	Lancaster,	1881
Bonebreak, D. W.	Martinsburg,	Blair,	1866
Bonsteel, A. S.	Corry,	Erie,	1878
Bordner, H. H.	Beavertown,	Snyder,	1881
Bottum, A. L.	Westfield,	Tioga,	1881
Bowman, J. D.	Harrisburg,	Dauphin,	1876
Bowman, J. F.	Millersburg,	"	1878
Boyles, R. M.	Reynoldsville,	Jefferson,	1878
Bradford, T. Hewson	Philadelphia,	Philadelphia,	1880
Bradley, Chas.	Norristown,	Montgomery,	1876
Brady, S. H.	Lost Creek,	Schuylkill,	1880
Brandes, C.	Erie,	Erie,	1869
Brandt, E. B.	Mechanicsburg,	Cumberland,	1867
Brehm, Samuel H.	Newville,	"	1873
Breinig, P. B.	Bethlehem,	Northampton,	1874
Brendle, Geo. F.	Mahanoy City,	Schuylkill,	1874
Brobst, J. C.	Litiz,	Lancaster,	1881
Brooke, John B.	Reading,	Berks,	1877
Brooks, F. V.	Breakneck,	Butler,	1883
Brown, Geo. W.	Port Carbon,	Schuylkill,	1867
Brown, Jas. M.	McVeytown,	Mifflin,	1880
Brown, R. B.	Summerville,	Jefferson,	1878
Brubaker, A. S.	Akron,	Lancaster,	1881
Bruen, Edw. T.	Philadelphia,	Philadelphia,	1879
Brumbaugh, A. B.	Huntingdon,	Huntingdon,	1873
Brundage, A. T.	Factoryville,	Wyoming,	1873
Bruner, Daniel J.	Columbia,	Lancaster,	1873
Buck, Frederick J.	Philadelphia,	Philadelphia,	1872
Buck, W. Penn	"	"	1880
Buckby, Wilson	"	"	1875
Bulkeley, J. E.	Wilkesbarre,	Luzerne,	1871
Bunting, Ross R.	Philadelphia,	Philadelphia,	1883
Burchfield, J. P.	Clearfield,	Clearfield,	1874
Burnett, Charles H.	Philadelphia,	Philadelphia,	1883

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Burr, Chas.	Carbondale,	Lackawanna,	1875
Burroughs, J. L.	Sugar Grove,	Warren,	1882
Bushong, Israel	New Holland,	Lancaster,	1875
Buzzard, John	Bangor,	Northampton,	1880
Byers, John E.	Butler,	Butler,	1880
Cadwalader, C. E.	Philadelphia,	Philadelphia,	1882
Callan, J. S.	Shenandoah,	Schuylkill,	1883
Calvin, D. M.	Meadville,	Crawford,	1868
Campbell, R. A.	Lewistown,	Mifflin,	1881
Carey, R. B.	Glenloch,	Chester,	1883
Carpenter, Henry	Lancaster,	Lancaster,	1865
Carpenter, John T.	Pottsville,	Schuylkill,	1866
Carr, A. P.	St. Clair,	"	1877
Case, A. G.	Pittsburg,	Allegheny,	1878
Charles, J.	Lincoln,	Lancaster,	1883
Chase, R. H.	Norristown,	Montgomery,	1883
Chessrown, A. V.	Pittsburg,	Allegheny,	1873
Chestnut, J. H. W.	Philadelphia,	Philadelphia,	1876
Chrisman, R. S.	Pottsville,	Schuylkill,	1875
Christie, J. H.	Allegheny,	Allegheny,	1880
Christie, L. H.	Franklin,	Venango,	1880
Christler, J. H.	Stoneboro',	Mercer,	1875
Christy, J. C.	Pittsburg,	Allegheny,	1878
Christy, J. L.	Conoquonessing,	Butler,	1880
Christy, R. W.	Sabbath Rest,	Blair,	1880
Chritzman, Henry G.	Welch Run,	Franklin,	1879
Church, Rita B.	Williamsport,	Lycoming,	1883
Cisna, W. R.	Ickesburg,	Perry,	1868
Clagett, L. S.	Blairsville,	Indiana,	1878
Clark, A. T.	Greenville,	Mercer,	1871
Clark, G. L.	Centreville,	Crawford,	1882
Clark, L. S.	Philadelphia,	Philadelphia,	1876
Clark, R. W.	Dunbar,	Fayette,	1881
Clark, Wm. N.	Whitestown,	Butler,	1879
Claudy, J. C.	Newville,	Cumberland,	1869
Cleaver, Israel	Reading,	Berks,	1873
Cleaves, Margaret A.	Harrisburg,	Dauphin,	1881
Cleemann, Richard A.	Philadelphia,	Philadelphia,	1879
Closson, C. H.	Altoona,	Blair,	1879
Coblentz, Joseph	Reading,	Berks,	1872
Cohen, J. Solis	Philadelphia,	Philadelphia,	1876

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Cole, W. W.	Allegheny,	Allegheny,	1878
Colt, S. F.	Laporte,	Sullivan,	1882
Compton, Wm.	Lancaster,	Lancaster,	1868
Coope, A. F.	Oil City,	Venango,	1882
Cooper, A. M.	Point Pleasant,	Bucks,	1881
Coover, D. H.	Harrisburg,	Dauphin,	1875
Coover, Eli H.	"	"	1876
Coover, F. W.	"	"	1883
Corson, E. M.	Norristown,	Montgomery,	1876
Corson, Hiram	Conshohocken,	"	1862
Corson, Wm.	Norristown,	"	1870
Corss, Frederick	Kingston,	Luzerne,	1869
Cottrell, J. F.	Columbia,	Lancaster,	1881
Cowan, Frank	Greensburg,	Westmoreland,	1873
Cox, Andrew P.	Big Run,	Jefferson,	1880
Craig, Alex.	Columbia,	Lancaster,	1869
Craig, Stephen A.	Freedom,	Beaver,	1879
Crandall, G. D.	Blossburg,	Tioga,	1877
Crawford, J. B.	Wilkesbarre,	Luzerne,	1867
Crawford, J. L.	Greensburg,	Westmoreland,	1881
Crawford, Robert	Cooperstown,	Venango,	1868
Cressler, John M.	Wilkesbarre,	Luzerne,	1876
Crisswell, John	New Bethlehem,	Clarion,	1875
Crisswell, J. T.	Harrisburg,	Dauphin,	1883
Cruice, Robert B.	Philadelphia,	Philadelphia,	1879
Cruice, Wm. R.	"	"	1881
Cunningham, J. G.	Kittanning,	Armstrong,	1881
Curtin, Roland G.	Philadelphia,	Philadelphia,	1881
Curtis, Levi	"	"	1862
Curwen, Jno.	Warren,	Warren,	1866
Dale, J. Y.	Lemont,	Centre,	1877
Dale, Wm. W.	Carlisle,	Cumberland,	1868
Daly, Wm. H.	Pittsburg,	Allegheny,	1871
Darling, Lewis, Jr.	Lawrenceville,	Tioga,	1875
Davis, F. F.	Oil City,	Venango,	1870
Davis, Jesse H.	Soudersburg,	Lancaster,	1881
Davis, John	Pottstown,	Montgomery,	1883
Davis, Miles L.	Millersville,	Lancaster,	1874
Davis, R.	Wilkesbarre,	Luzerne,	1874
Davis, Samuel T.	Lancaster,	Lancaster,	1869
Deakyne, A. C.	Philadelphia,	Philadelphia,	1882

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Deaver, J. B.	Philadelphia,	Philadelphia,	1883
Deaver, J. M.	Buck,	Lancaster,	1881
Deisinger, J.	Hellam,	York,	1881
Detwiler, B. H.	Williamsport,	Lycoming,	1865
Dewey, E. H.	Meadville,	Crawford,	1882
Dickeson, W. T. W.	Media,	Delaware,	1863
Dickson, J. S.	Pittsburg,	Allegheny,	1882
Donaldson, J. B.	Canonsburg,	Westmoreland,	1877
Donnelly, J. F.	Philadelphia,	Philadelphia,	1883
Donnelly, M. J.	Summit Hill,	Carbon,	1883
Dorworth, E S.	Bellefonte,	Centre,	1880
Doughty, Wm. E.	Hartsville,	Bucks,	1881
Drake, H. H.	Norristown,	Montgomery,	1879
Drysdale, Thomas M.	Philadelphia,	Philadelphia,	1864
Duhring, Louis A.	"	"	1877
Dulles, C. W.	"	"	1883
Duncan, W. S.	Brownsville,	Fayette,	1869
Dundor, A. B.	Reading,	Berks,	1872
Dunglison, Richard J.	Philadelphia,	Philadelphia,	1867
Dunigan, M. C.	Erie,	Erie,	1882
Dunlap, J. Francis	Manheim,	Lancaster,	1876
Dunmire, Geo. B.	Philadelphia,	Philadelphia,	1874
Dunn, J. C.	Pittsburg,	Allegheny,	1875
Dunn, T. D.	West Chester,	Chester,	1883
Dunott, Thos. J.	Harrisburg,	Dauphin,	1881
Dusenbery, C. S.	Le Raysville,	Bradford,	1875
Dwight, M. B.	Jersey Shore,	Lycoming,	1876
Easton, Andrew	Allegheny,	Allegheny,	1876
Eby, James B.	Newport,	Perry,	1873
Egbert, T. W.	Oil City,	Venango,	1869
Ehler, J. Aug.	Lancaster,	Lancaster,	1864
Eisenberg, P. Y.	Norristown,	Montgomery,	1874
Eisaman, C. D. B.	Scottdale,	Westmoreland,	1875
Elderdice, R. B.	McKnightstown,	Adams,	1877
Ellenberger, J. W.	Harrisburg,	Dauphin,	1881
Elliott, J. C.	Bradford,	McKean,	1881
Emmerling, C.	Pittsburg,	Allegheny,	1878
Emory, B. A.	Dunningville,	Washington,	1881
Engelman, David	Easton,	Northampton,	1876
Engelman, J. P.	Cherryville,	"	1876
Eppley, G. W.	Marysville,	Perry,	1880

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Erdman, J. Dallas	Macungie,	Lehigh,	1875
Erdman, W. B.	"	"	1865
Eshleman, I. S.	Philadelphia,	Philadelphia,	1872
Eskridge, J. T.	"	"	1883
Evans, Horace Y.	"	"	1871
Evans, W. C.	Erie,	Erie,	1882
Evans, Isaac Newton	Hatborough,	Montgomery,	1862
Evans, Jos. R.	Bloomsburg,	Columbia,	1881
Evans, T. R.	Pittsburg,	Allegheny,	1879
Ewing, J. B.	Uniontown,	Fayette,	1878
Ewing, R. B.	West Grove,	Chester,	1879
Fager, C. M.	Harrisburg,	Dauphin,	1883
Farquhar, Q. C.	East Bethlehem,	Washington,	1882
Fay, John	Altoona,	Blair,	1870
Feicht, Benjamin	Economy,	Beaver,	1868
Fenton, Thos. H.	Philadelphia,	Philadelphia,	1880
Findley, Wm. M.	Altoona,	Blair,	1870
Finley, Wm. R.	"	"	1881
Fish, W. B.	Elwyn,	Delaware,	1883
Fisher, P. S.	ion,	Centre,	1882
Fisk, A. J.	Tioga,	Tioga,	1878
Fitzgerald, J. M.	Lamartine,	Clarion,	1875
Fleming, Andrew	Pittsburg,	Allegheny,	1878
Floyd, John B.	Belleville,	Mifflin,	1880
Forbes, W. S.	Philadelphia,	Philadelphia,	1881
Formad, H. F.	"	"	1883
Foster, W. S.	Pittsburg,	Allegheny,	1868
Foulke, Joseph	Buckingham,	Bucks,	1864
Foust, J. W.	Reynoldsville,	Jefferson,	1880
Fox, G. T.	Bath,	Northampton,	1883
Frankhausen, F. W.	Blue Rock,	Chester,	1883
French, Morris Stroud	Philadelphia,	Philadelphia,	1880
Frey, Levi	Glen Rock,	York,	1879
Frické, Albert	Philadelphia,	Philadelphia,	1862
Frick, Wm. S.	"	"	1873
Fritchey, John A.	Harrisburg,	Dauphin,	1881
Fulton, J. A.	Delmont,	Westmoreland,	1883
Fulton, T. H.	Sandy Lake,	Mercer,	1874
Fulton, James	New London,	Chester,	1875
Fussell, Linnæus	Media,	Delaware,	1876
Gable, J. C.	York,	York,	1881

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Gaddis, L. S.	Uniontown,	Fayette,	1878
Gallaher, T. J.	Pittsburg,	Allegheny,	1865
Gardner, B. F.	Bloomsburg,	Columbia,	1880
Garver, Jane K.	Harrisburg,	Dauphin,	1883
Geibner, E. X.	Sandy Lake,	Mercer,	1872
Gemmill, J. M., Jr.	Tyrone,	Blair,	1874
Gerhard, J. Z.	Harrisburg,	Dauphin,	1873
Gibbs, J. W.	Scranton,	Lackawanna,	1883
Gibbs, L. H.	"	"	1880
Gibson, W. M. B.	Reynoldsville,	Jefferson,	1883
Gillaud, J. C.	Greencastle,	Franklin,	1880
Gilliford, R. H.	Allegheny,	Allegheny,	1880
Girvin, Robt. M.	Philadelphia,	Philadelphia,	1880
Glenn, J. P.	Snow Shoe,	Centre,	1876
Goodell, Wm.	Philadelphia,	Philadelphia,	1870
Gorgas, S. R.	Harrisburg,	Dauphin,	1877
Graham, Sam'l	Butler,	Butler,	1875
Green, Traill	Easton,	Northampton,	1863
Griswold, E.	Sharon,	Mercer,	1873
Groff, G. G.	Lewisburg,	Union,	1882
Gross, Samuel D.	Philadelphia,	Philadelphia,	1862
Gross, Samuel W.	"	"	1877
Grove, George	Springfield,	Cumberland,	1868
Gulden, B. C.	Minersville,	Schuylkill,	1876
Halbauer, T. K.	St. Clair,	Schuylkill,	1876
Halberstadt, A. H.	Pottsville,	"	1866
Halberstadt, Geo. H.	"	"	1881
Hall, A. D.	Philadelphia,	Philadelphia,	1876
Hall, J. E.	Emlenton,	Armstrong,	1882
Hall, L. Brewer	Philadelphia,	Philadelphia,	1879
Halsey, Calvin C.	Montrose,	Susquehanna,	1862
Hamilton, George	Philadelphia,	Philadelphia,	1862
Hamilton, Hugh	Harrisburg,	Dauphin,	1874
Harman, G. G.	Reedsville,	Mifflin,	1883
Harper, D.	Karns City,	Butler,	1882
Harris, Geo. F.	Bellefonte,	Centre,	1878
Harshberger, A.	Milroy,	Mifflin,	1874
Harshberger, A. S.	"	"	1875
Hartman, Paul A.	Harrisburg,	Dauphin,	1875
Hartman, W. B.	St. Mary,	Elk,	1882
Harvey, Ellwood	Chester,	Delaware,	1862

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Hassler, Jas. P.	Cochranton,	Crawford,	1871
Hatfield, Nathan	Philadelphia,	Philadelphia,	1869
Hatfield, N. L.	"	"	1862
Hay, Jacob	York,	York,	1877
Hay, John W.	Harrisburg,	Dauphin,	1873
Hay, Thomas	Philadelphia,	Philadelphia,	1866
Hayes, D. D.	Shippensburg,	Cumberland,	1873
Hayes, D. S.	Hollidaysburg,	Blair,	1871
Hayes, Thos. R.	Bellefonte,	Centre,	1877
Hays, I. Minis	Philadelphia,	Philadelphia,	1883
Hazel, F. B.	"	"	1883
Hearn, Joseph	"	"	1880
Heilman, Salem	Sharon,	Mercer,	1874
Hellyer, Edwin	Philadelphia,	Philadelphia,	1862
Helsby, Thos. H.	Williamsport,	Lycoming,	1869
Hengst, D. A.	Pittsburg,	Allegheny,	1878
Henry, Frederick P.	Philadelphia,	Philadelphia,	1879
Herbst, H. H.	Reading,	Berks,	1882
Herbst, Wm. B.	Trexlertown,	Lehigh,	1866
Herman, A. J.	Carlisle,	Cumberland,	1872
Hermany, P.	Mahanoy City,	Schuylkill,	1874
Herr, Ambrose J.	Lancaster,	Lancaster,	1876
Herr, Benj. F.	Millersville,	"	1881
Herr, Martin L.	Lancaster,	"	1872
Herron, Wm. M.	Allegheny,	Allegheny,	1876
Hershey, E. R.	Paradise,	Lancaster,	1881
Hertz, J. K.	Litiz,	"	1875
Hewson, Addinell	Philadelphia,	Philadelphia,	1880
Hibler, Augustus	Bellefonte,	Centre,	1876
Hickman, Napoleon	Philadelphia,	Philadelphia,	1879
Hilliard, G. W.	Richardsville,	Jefferson,	1880
Hillier, J. W.	West Middlesex,	Mercer,	1878
Hine, E. C.	Philadelphia,	Philadelphia,	1883
Hinkle, A. G. B.	"	"	1865
Hoffa, J. P.	Washingtonville,	Montour,	1882
Hogue, D. A.	Houtzdale,	Clearfield,	1883
Holahan, John F.	York,	York,	1873
Hollopeter, W. C.	Philadelphia,	Philadelphia,	1883
Holt, Jacob F.	"	"	1876
Homet, Volney	Camptown,	Bradford,	1870
Hoover, N. M.	North Hope,	Butler,	1876

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Hopkins, Ephraim	Marshalton,	Chester,	1876
Horner, Caleb W.	Philadelphia,	Philadelphia,	1879
Horner, Charles	Gettysburg,	Adams,	1875
Horton, Geo. F.	Terrytown,	Bradford,	1862
Hosack, J. P.	Mercer,	Mercer,	1870
Hoskins, Percy C.	West Chester,	Chester,	1876
Houston, J. Willis	Collamer,	"	1880
Howland, C. A.	Shippensburg,	Cumberland,	1877
Huffman, D. C.	McKeesport,	Allegheny,	1880
Hughes, J. W.	Blairsville,	Indiana,	1869
Hull, A. P.	Montgomery Sta.,	Lycoming,	1877
Hull, W. R.	Williamsport,	Luzerne,	1864
Hummel, C. C.	Mechanicsburg,	Cumberland,	1881
Humphreys, G. L.	Irwin,	Westmoreland,	1877
Humphrey, Wm. T.	Osceola,	Tioga,	1869
Hunsberger, W. E.	Maiden Creek,	Berks,	1883
Hunt, J. S.	Easton,	Northampton,	1883
Hunt, Wm.	Philadelphia,	Philadelphia,	1883
Hunter, Chas. T.	"	"	1878
Huselton, W. S.	Allegheny City,	Allegheny,	1870
Hutton, J. C.	Harrisburg,	Dauphin,	1873
Hyson, J. M.	York,	York,	1881
Ingram, T. D.	West Chester,	Chester,	1883
Irwin, Crawford	Hollidaysburg,	Blair,	1867
Irwin, R. C.	Frankstown,	Blair,	1883
Jackson, Edw.	West Chester,	Chester,	1881
Jackson, T. M.	Hadley,	Mercer,	1878
Jacob, Harry,	Altoona,	Blair,	1880
Janney, Wm. S.	Philadelphia,	Philadelphia,	1881
Jefferies, D. W.	Chester,	Delaware,	1876
Jennings, W. H.	Blossburg,	Tioga,	1881
Jessup, S. A. S.	Kittanning,	Armstrong,	1882
Jones, H. Isaac	Hyde Park,	Lackawanna,	1877
Kamerer, J. W. B.	Greensburg,	Westmoreland,	1876
Kanawall, J. F.	Penn's Creek,	Snyder,	1883
Kay, Thos. M.	Columbia,	Lancaster,	1881
Keen, Wm. W.	Philadelphia,	Philadelphia,	1883
Keiffer, S. B.	Carlisle,	Cumberland,	1871
Keller, D. C.	Union Deposit,	Dauphin,	1869
Kelly, J. V.	Philadelphia,	Philadelphia,	1883
Kemp, Agnes	Harrisburg,	Dauphin,	1881

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Kerlin, Isaac N.	Elwyn,	Delaware,	1869
Kerr, James	Pittsburg,	Allegheny,	1880
Kerr, James W.	York,	York,	1879
Keyser, Peter D.	Philadelphia,	Philadelphia,	1874
Kibler, C. B.	Corry,	Erie,	1876
King, C. B.	Allegheny,	Allegheny,	1876
King, J. C.	Reynoldsville,	Jefferson,	1880
Kirkbride, Thos. S.	Philadelphia,	Philadelphia,	1876
Kistler, E. H.	Tamaqua,	Schuylkill,	1872
Kline, L. B.	Catawissa,	Columbia,	1875
Klingensmith, I. P.	Derry Station,	Westmoreland,	1876
Knapp, C. B.	Stevensville,	Bradford,	1876
Knight, Samuel R.	Philadelphia,	Philadelphia,	1876
Knipe, J. O.	Norristown,	Montgomery,	1879
Knox, Wm. F.	McKeesport,	Allegheny,	1867
Kohler, J. B.	New Holland,	Lancaster,	1883
Kratz, Harvey	Hilltown,	Berks,	1879
Krise, C. W.	Carlisle,	Cumberland,	1877
Kugler, Anna S.	Ardmore,	Montgomery,	1883
Kuhn, L. DeBarth	Reading,	Berks,	1871
Kurtz, J. Ellis	"	"	1881
Lachenour, H. D.	Easton,	Northampton,	1874
Ladd, Horace	Philadelphia,	Philadelphia,	1883
Lane, Samuel G.	Chambersburg,	Franklin,	1870
Lange, J. C.	Pittsburg,	Allegheny,	1883
Langfitt, W. J.	Allegheny City,	Allegheny,	1864
Langton, D. J.	Shenandoah,	Schuylkill,	1883
Larimer, W. T.	Saltsburg,	Indiana,	1880
Laubach, Stephen	Easton,	Northampton,	1876
Leadenham, J. W.	Knox,	Clarion,	1881
Leaman, Brainard	Leaman Place,	Lancaster,	1871
Leaman, Henry	Philadelphia,	Philadelphia,	1870
Lee, Benjamin	"	"	1867
Lee, John G.	"	"	1882
Leet, F. H.	Greenville,	Mercer,	1876
Leffmann, Henry	Philadelphia,	Philadelphia,	1881
Leidy, Joseph	"	"	1862
Leidy, Philip	"	"	1877
Le Moyne, F.	Pittsburg,	Allegheny,	1878
Lenher, L. H.	Harrisburg,	Dauphin,	1877
Lenker, C.	Schuylkill Haven,	Schuylkill,	1880

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Leonard, R.	Mauch Chunk,	Carbon,	1882
Levan, J. R.	Philadelphia,	Philadelphia,	1880
Levis, Richard J.	"	"	1873
Lewis, T.	Mahanoy City,	Schuylkill,	1883
Lightner, J. N.	Ephrata,	Lancaster,	1881
Lineaweaver, John K.	Columbia,	"	1875
Linn, Geo. A.	Monongahela City,	Washington,	1875
Lippincott, J. A.	Pittsburg,	Allegheny,	1882
Little, Wm. S.	Philadelphia,	Philadelphia,	1881
Livingston, J. B.	West Middlesex,	Mercer,	1869
Livingston, Thos. M.	Mountville,	Lancaster,	1875
Lochman, L. M.	York,	York,	1881
Longsdorf, W. H.	Carlisle,	Cumberland,	1871
Longstreth, M. Fisher	Darby,	Delaware,	1876
Loop, D. D.	North-East,	Erie,	1868
Lowman, W. B.	Johnstown,	Cambria,	1883
Ludlow, J. L.	Philadelphia,	Philadelphia,	1883
Lusk, Jos. S.	Harmony,	Butler,	1878
Lyon, Edward	Williamsport,	Lycoming,	1871
Lyon, Thomas	"	"	1872
Lyons, Wm.	Philadelphia,	Philadelphia,	1872
Lytle, Geo. E.	Monongahela City,	Washington,	1880
McCaa, D. J.	Ephrata,	Lancaster,	1880
McCann, James	Pittsburg,	Allegheny,	1867
McCarrell, D.	Hickory,	Washington,	1878
McCarroll, Jas.	Allegheny,	Allegheny,	1878
McClelland, Cochran	Philadelphia,	Philadelphia,	1877
McComb, S. F.	St. Petersburg,	Clarion,	1882
McConnell, H. S.	New Brighton,	Beaver,	1878
McConoughy, D. W.	Latrobe,	Westmoreland,	1867
McConoughy, Jas.	Mt. Pleasant,	"	1876
McConoughy, Robert	"	"	1878
McCoy, A. W.	Philadelphia,	Philadelphia,	1883
McCoy, H. L.	Smithport,	McKean,	1882
McCulloch, J. T.	Freeport,	Armstrong,	1882
McCulloch, T. C.	Oil City,	Venango,	1882
McCurdy, R. L.	Freeport,	Armstrong,	1883
McDonald, Nesbit	Pittsburg,	Allegheny,	1869
McDonough, H. H.	Vanceville,	Washington,	1881
McElroy, Jos.	Hickory,	"	1876
McFerran, J. A.	Philadelphia,	Philadelphia,	1883

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
McGill, P.	Williamstown,	Dauphin,	1881
McGowan, H.	Harrisburg,	"	1876
McIntire, Chas.	Easton,	Northampton,	1876
McKean, J. A.	Washington,	Washington,	1878
McKennan, Thos.	"	"	1868
McKennon, M. J.	York,	York,	1876
McKibben, D. J.	Ashland,	Schuylkill,	1879
McKim, V. I.	Lewistown,	Mifflin,	1883
McKinney, D., Jr.	New Brighton,	Beaver,	1868
McMullen, Thomas	Greenville,	Indiana,	1865
McMurray, A. S.	Philadelphia,	Philadelphia,	1864
McNitt, S. F.	Sheffield,	Warren,	1883
McRean, Thos. A.	Philadelphia,	Philadelphia,	1874
McReynolds, H. W.	Bloomsburg,	Columbia,	1862
Mabon, Thos.	Allegheny,	Allegheny,	1869
Mackrees, H. O.	Corry,	Erie,	1882
Magill, Wm. H.	Danville,	Montour,	1870
Mahan, James T.	Newton Hamilton,	Mifflin,	1878
Maine, Geo. D.	Mainesburg,	Tioga,	1874
Mann, Chas. H.	Bridgeport,	Montgomery,	1876
Marchand, J. I.	Irwin,	Westmoreland,	1882
Markley, P. H.	Hatboro,	Montgomery,	1883
Marquis, David S.	Rochester,	Beaver,	1863
Martin, E. G.	Allentown,	Lehigh,	1866
Martin, H. G.	Cherry Flats,	Tioga,	1880
Massey, Isaac	West Chester,	Chester,	1882
Masten, James	Westfield,	Tioga,	1872
Mathews, Franklin	Temple,	Berks,	1875
Matson, C. M.	Brookville,	Jefferson,	1878
Matson, W. F.	"	"	1882
Matter, G. F.	Williamstown,	Dauphin,	1882
Mausteller, J. D.	Danville,	Montour,	1873
Maxwell, Jno. K.	Worthington,	Armstrong,	1880
Mayer, E. R.	Wilkesbarre,	Luzerne,	1866
Mayer, Isaac H.	Willowstreet,	Lancaster,	1877
Mays, T. J.	Upper Lehigh,	Luzerne,	1877
Meals, N. M.	Callensburg,	Clarion,	1878
Meals, S. D.	"	"	1872
Means, Wm. A.	Luthersburg,	Clearfield,	1873
Mears, J. Ewing	Philadelphia,	Philadelphia,	1883
Mehard, J. W.	Mercer,	Mercer,	1878

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Mehard, S. S.	Mercer,	Mercer,	1871
Meisenhelder, Ed. W.	York,	York,	1877
Melhorn, E.	New Chester,	Adams,	1879
Merklein, C. H.	Chambersburg,	Franklin,	1879
Meschter, G. K.	Centre Point,	"	1876
Meyer, L. G.	Pardoe,	Mercer,	1875
Middleton, W. J.	Harrisburg,	Dauphin,	1881
Miller, A. M.	Bird-in-Hand,	Lancaster,	1876
Miller, D. P.	Huntingdon,	Huntingdon,	1873
Miller, D. W.	Adamsburg,	Westmoreland,	1882
Miller, E. S.	Altoona,	Blair,	1880
Miller, O. L.	Allegheny,	Allegheny,	1867
Miller, W. N.	"	"	1882
Milligan, J. D.	Madison,	Westmoreland,	1882
Milliken, D. B.	Landisburg,	Perry,	1864
Mills, Chas. K.	Philadelphia,	Philadelphia,	1879
Mills, Edward	Ulster,	Bradford,	1869
Milner, R. H.	Chester,	Delaware,	1879
Mingle, D. H.	Millheim,	Centre,	1880
Minnich, A. K.	Philadelphia,	Philadelphia,	1881
Mixsell, Jos.	Easton,	Northampton,	1874
Montgomery, E. E.	Philadelphia,	Philadelphia,	1881
Montgomery, John	Chambersburg,	Franklin,	1871
Moody, George O.	Titusville,	Crawford,	1869
Moore, E. W.	Franklin,	enango,	1882
Morris, J. Cheston	Philadelphia,	Philadelphia,	1870
Morrison, M. P.	Monongahela City,	Washington,	1871
Mosser, E. N.	Mechanicsburg,	Cumberland,	1873
Mossman, B. E.	Greenville,	Mercer,	1870
Mowry, J. L.	Conestoga,	Lancaster,	1883
Mowry, R. B.	Allegheny,	Allegheny,	1865
Muhlenberg, F.	Philadelphia,	Philadelphia,	1883
Muhlenberg, W. F.	Reading,	Berks,	1875
Mumma, E. W.	Bendersville,	Adams,	1879
Murdoch, F. H.	Bradford,	McKean,	1882
Murdock, J. B.	Pittsburg,	Allegheny,	1876
Murphy, Joseph A.	Wilkesbarre,	Luzerne,	1874
Musser, C. Sumner	Aaronsburgh,	Centre,	1881
Musser, F. M.	Witmer,	Lancaster,	1874
Musser, Henry E.	"	"	1881
Musser, J. Henry	Lampeter,	"	1876

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Musser, J. P.	Philadelphia,	Philadelphia,	1883
Musser, P. T.	Aaronsburg,	Centre,	1878
Myers, J. M.	Wernersville,	Berks,	1883
Nancrede, Chas. B.	Philadelphia,	Philadelphia,	1879
Nash, J. D.	"	"	1876
Nebinger, Andrew	"	"	1862
Neely, Jas. W.	Pittsburg,	Allegheny,	1879
Nelan, J. R.	Brownsville,	Fayette,	1878
Newbaker, P. C.	Washingtonville,	Montour,	1879
Newcomet, H. W.	Philadelphia,	Philadelphia,	1874
Newton, D. N.	Towanda,	Bradford,	1874
Neyman, A. M.	Butler,	Butler,	1867
Nipple, H. M.	Freeburg,	Snyder,	1881
Noble, Wm. P.	Upton,	Franklin,	1879
Noel, A.	Bouneauville,	Adams,	1883
Nolan, Edw. J.	Philadelphia,	Philadelphia,	1879
Nutt, Geo. D.	Williamsport,	Lycoming,	1878
Ogleby, James	Danville,	Montour,	1875
O'Farrell, G. D.	Philadelphia,	Philadelphia,	1883
O'Hara, Michael	"	"	1874
O'Neal, J. W. C.	Gettysburg,	Adams,	1876
O'Neil, John J.	Philadelphia,	Philadelphia,	1874
Oliver, Chas. A.	"	"	1883
Orris, H. O.	Newport,	Perry,	1873
Orth, H. L.	Harrisburg,	Dauphin,	1868
Ott, Isaac	Easton,	Northampton,	1871
Owens, W. R.	Ashland,	Schuylkill,	1875
Packard, John H.	Philadelphia,	Philadelphia,	1877
Packer, Nelson	Wellsboro',	Tioga,	1870
Palmer, Chas. T.	Pottsville,	Schuylkill,	1878
Pancoast, Wm. H.	Philadelphia,	Philadelphia,	1867
Parcels, W. H.	Lewistown,	Mifflin,	1882
Parish, Wm. H.	Philadelphia,	Philadelphia,	1879
Park, J. W.	Williamstown,	Dauphin,	1882
Parke, A. G. B.	Gap,	Lancaster,	1877
Partenheimer, John R.	Philadelphia,	Philadelphia,	1876
Patrick, E.	West Whiteland,	Chester,	1883
Patterson, J. A.	Zollarsville,	Washington,	1881
Pearson, J. W.	York Spring,	Adams,	1881
Pennepacker, H.	Harford,	Susquehanna,	1876
Pepper, William	Philadelphia,	Philadelphia,	1875

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Perdue, W. R.	Unionville,	Chester,	1881
Perkins, E. Stanley	Philadelphia,	Philadelphia,	1874
Perkins, F. M.	"	"	1883
Pfouts, Geo. I.	Jersey Shore,	Lycoming,	1881
Phelps, W. C.	Philadelphia,	Philadelphia,	1869
Phillips, Ellis	New Haven,	Fayette,	1880
Phillips, J. W.	Clifton Heights,	Delaware,	1881
Pickett, M.	orry,	Erie,	1882
Pillow, R. H.	Butler,	Butler,	1878
Pollock, A. M.	Pittsburg,	Allegheny,	1871
Porter, Wm. G.	Philadelphia,	Philadelphia,	1878
Pownall, H. W.	Atglen,	Chester,	1881
Prall, C. R.	Philadelphia,	Philadelphia,	1876
Price, Henry R.	Kennett Square,	Chester,	1883
Price, Jacob	West Chester,	"	1864
Pursell, Howard	Bristol,	Bucks,	1883
Pursell, Isaac	Danville,	Montour,	1874
Quail, C. E.	Auburn,	Schuylkill,	1877
Quick, P. A.	Sugar Run,	Bradford,	1875
Rahauser, G. G.	Pittsburg,	Allegheny,	1876
Rahter, C. A.	Harrisburg,	Dauphin,	1873
Ralston, R. G.	Corwansville,	Armstrong,	1882
Ramsay, Robt. W.	St. Thomas,	Franklin,	1877
Ramsey, R. N.	Mahanoy City,	Schuylkill,	1883
Rankin, D. N.	Allegheny,	Allegheny,	1867
Rankin, M. M.	Brockwayville,	Clarion,	1881
Raudenbash, A. S.	Adamstown,	Berks,	1874
Read, F. B.	Osceola Mills,	Clearfield,	1880
Read, L. W.	Norristown,	Montgomery,	1883
Reagan, G. L.	Berwick,	Schuylkill,	1870
Reber, W. M.	Bloomsburg,	Columbia,	1876
Redeker, F. W.	Espy,	"	1881
Redick, . T.	Allegheny City,	Allegheny,	1875
Reed, A. G.	Philadelphia,	Philadelphia,	1883
Reed, I. A. E.	Lancaster,	Lancaster,	1883
Reed, Joseph A.	Dixmont,	Allegheny,	1877
Reed, J. H.	Sharon,	Mercer,	1882
Reichard, C. C.	Brownsville,	Fayette,	1878
Reichard, P. L.	Allentown,	Lehigh,	1868
Reid, A. M.	Clarion,	Clarion,	1882
Reid, J. K.	Conshohocken,	Montgomery,	1867

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Reilly, G. W.	Harrisburg,	Dauphin,	1876
Reily, Wm. F.	Carlisle,	Cumberland,	1880
Reiter, W. C.	Pittsburg,	Allegheny,	1869
Rentschler, H. D.	Ringtown,	Schuylkill,	1878
Rhodes, Almira F.	Cambridgeton,	Crawford,	1882
Richards, I. N.	Fallsington,	Bucks,	1883
Richardson, E.	Philadelphia,	Philadelphia,	1883
Richardson, Jos. G.	"	"	1877
Richter, A.	Williamsport,	Lycoming,	1872
Rickards, W. M. L.	Philadelphia,	Philadelphia,	1875
Riemsnyder, B. J.	Hinkletown,	Lancaster,	1881
Rigg, J. E.	Stoners,	Westmoreland,	1882
Riggs, Elliott S.	Allegheny,	Allegheny,	1876
Righter, Washington	Philadelphia,	Philadelphia,	1879
Ringwalt, M.	Hempfield,	Lancaster,	1883
Rippard, H.	Wilkesbarre,	Luzerne,	1883
Risley, S. D.	Philadelphia,	Philadelphia,	1878
Ritchey, John A.	Oil City,	Venango,	1874
Robbins, E. S.	Covington,	Tioga,	1880
Roberts, John B.	Philadelphia,	Philadelphia,	1878
Roebuck, P. J.	Litiz,	Lancaster,	1866
Rogers, R. E.	Philadelphia,	Philadelphia,	1870
Rohrer, T. M.	Quarryville,	Lancaster,	1883
Roland, Oliver	Lancaster,	"	1878
Roland, W. S.	York,	York,	1876
Roller, W. C.	Hollidaysburg,	Blair,	1869
Ross, James	Clarion,	Clarion,	1867
Ross, John D.	Williamsburg,	Blair,	1863
Ross, J. Frank	Clarion,	Clarion,	1870
Ross, S. M.	Altoona,	Blair,	1864
Ross, W. S.	"	"	1883
Rothrock, A.	McVeytown,	Mifflin,	1877
Rothrock, J. T.	West Chester,	Chester,	1883
Rothrock, R.	Middleburg,	Snyder,	1880
Rouse, S. J.	York,	York,	1881
Rupp, H.	Hummelstown,	Dauphin,	1877
Russell, E. A.	Fleming,	Centre,	1883
Rutledge, S. R.	Blairsville,	Indiana,	1879
Sample, John	Wilkinsburg,	Allegheny,	1866
Samuel, E. W.	Mt. Carmel,	Northumberla'd,	1883
Sandt, John	Easton,	Northampton,	1871

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Santee, Eugene I.	Philadelphia,	Philadelphia,	1874
Sargent, Goram P.	Radnor,	Delaware,	1870
Sarver, William	Allegheny City,	Allegheny	1869
Savery, Wm.	Bryn Mawr,	Montgomery,	1883
Saylor, Jean S.	Wilkesbarre,	Luzerne,	1883
Schoales, J. D.	Philadelphia,	Philadelphia,	1878
Schofield, E. Lane	Wiconisco,	Dauphin,	1881
Schrack, John	Jeffersonville,	Montgomery,	1862
Schultz, S. S.	Danville,	Montour,	1867
Scott, Franklin P.	Monongahela,	Washington,	1872
Scott, J. Y.	Bentleysville,	Washington,	1883
Seabrook, C. C.	Harrisburg,	Dauphin,	1879
Seem, A. A.	Bangor,	Northampton,	1879
Seem, A. K.	Martin's Creek,	"	1870
Seibert, W. H.	Steelton,	Dauphin,	1877
Seiler, Carl	Philadelphia,	Philadelphia,	1881
Seiler, J. P.	Harrisburg,	Dauphin,	1883
Seip, Amos	Easton,	Northampton,	1863
Seip, W. H.	Bath,	"	1883
Seiple, S. C.	Centre Square,	Montgomery,	1883
Seiss, R. S.	Littlestown,	Adams,	1881
Seltzer, Chas. M.	Philadelphia,	Philadelphia,	1883
Shannon, B. F.	Schuylkill Haven,	Schuylkill,	1875
Shapleigh, E. B.	Philadelphia,	Philadelphia,	1876
Shaw, Thos. W.	Pittsburg,	Allegheny,	1866
Sheaffer, A. H.	Lewistown,	Mifflin,	1876
Sheaffer, I. F.	Farmersville,	Lancaster,	1881
Shearer, Jas. Y.	Sinking Spring,	Berks,	1868
Sheibly, J. P.	Landisburg,	Perry,	1879
Shelly, A. F.	Philadelphia,	Philadelphia,	1876
Shepler, J. T.	Dunbar,	Fayette,	1880
Sheridan, J. C.	Johnstown,	Cambria,	1883
Sherk, J. H.	Litiz,	Lancaster,	1883
Sherk, Levi A.	Union Forge,	Lebanon,	1879
Shindel, John Y.	Middleburg,	Snyder,	1881
Shive, Peter C.	Plainsville,	Luzerne,	1867
Shoemaker, John V.	Philadelphia,	Philadelphia,	1878
Shoemaker, Wm. P.	Bradford,	McKean,	1880
Short, R. N.	Mechanicsburg,	Cumberland,	1867
Shrawder, Jno. S.	Shanonville,	Montgomery,	1870
Shugert, F. A.	Tidioute,	Warren,	1883

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Sibbet, R. L.	Carlisle,	Cumberland,	1870
Silliman, J. E.	Erie,	Erie,	1878
Simington, R. S.	Danville,	Montour,	1868
Skillern, S. R.	Philadelphia,	Philadelphia,	1876
Sloan, Jas. G.	Monongahela City,	Washington,	1879
Smaltz, J. Henry	Philadelphia,	Philadelphia,	1862
Smathers, W. J.	Du Bois,	Clearfield,	1880
Smith, A. M.	Beaver Springs,	Snyder,	1883
Smith, Albert H.	Philadelphia,	Philadelphia,	1879
Smith, Amos H.	Paradise,	Lancaster,	1879
Smith, Geo. W.	Hollidaysburg,	Blair,	1866
Smith, Henry H.	Philadelphia,	Philadelphia,	1870
Smith, J. M.	Tyrone,	Blair,	1872
Smith, John K.	Harrisburg,	Dauphin,	1880
Smith, J. R.	Pine Grove Mills,	Centre,	1877
Smith, L. A.	New Milford,	Susquehanna,	1864
Smith, Robert B.	Tioga,	Tioga,	1871
Smith, W. C. J.	Pottsville,	Schuylkill,	1879
Smith, W. H.	Intercourse,	Lancaster,	1881
Snively, I. N.	Waynesboro,	Franklin,	1873
Snively, Wm.	Pittsburg,	Allegheny,	1878
Snodgrass, Jas. H.	"	"	1869
Snowden, S. G.	Franklin,	Venango,	1869
Spackman, R. V.	Luthersburg,	Clearfield,	1875
Spangler, C. F.	York,	York,	1877
Spaulding, S. C.	Shenandoah,	Schuylkill,	1876
Spencer, A. B.	Girardville,	"	1883
Spencer, C. A.	Dallas,	Luzerne,	1883
Spratt, Geo. R.	Coatesville,	Chester,	1877
Stahley, G. D.	Harrisburg,	Dauphin,	1876
Stayer, A. D.	Roaring Springs,	Blair,	1876
Stebbins, Sumner	Unionville,	Chester,	1863
Stees, J. I.	Harrisburg,	Dauphin,	1883
Stehman, H. B.	Lancaster,	Lancaster,	1881
Steinmetz, E. G.	Hokendauqua,	Lehigh,	1875
Stelwagen, T. C.	Media,	Delaware,	1883
Stewart, J. L.	Erie,	Erie,	1867
Stewart, S. C.	Clearfield,	Clearfield,	1883
Stewart, Thos.	Carlisle,	Cumberland,	1875
Stewart, W. G.	Newville,	"	1873
Stewart, W. H.	Kittanning,	Armstrong,	1878
Stewart, Wm. S.	Philadelphia,	Philadelphia,	1877

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Stiles, Geo. M.	Conshohocken,	Montgomery,	1876
Stillé, Alfred	Philadelphia,	Philadelphia,	1862
Stinson, Mary H.	Norristown,	Montgomery,	1881
Stout, A.	Bethlehem,	Northampton,	1883
Stranahan, D. V.	Warren,	Warren,	1883
Strawbridge, Geo.	Philadelphia,	Philadelphia,	1876
Strawbridge, J. D.	Danville,	Montour,	1871
Strickler, A. H.	Waynesboro',	Franklin,	1875
Strickler, M. B.	New Bloomfield,	Perry,	1877
Stubbs, Geo. E.	Philadelphia,	Philadelphia,	1874
Stubbs, J. H.	London Grove,	Chester,	1879
Sturgeon, W. H.	Uniontown,	Fayette,	1876
Suesserott, J. L.	Chambersburg,	Franklin,	1873
Sutton, R. S.	Pittsburg,	Allegheny,	1879
Swartlander, F.	Doylestown,	Bucks,	1883
Swartz, Joseph	Duncannon,	Perry,	1862
Swayze, Mary Alice	Pottsville,	Schuylkill,	1877
Swigart, J. R.	Bannerville,	Snyder,	1879
Swisher, Thos. J.	Jerseytown,	Columbia,	1871
Taggart, David,	Frackville,	Schuylkill,	1881
Taylor, J. Howard	Philadelphia,	Philadelphia,	1879
Taylor, L. H.	Wilkesbarre,	Luzerne,	1883
Taylor, Wm. T.	Philadelphia,	Philadelphia,	1873
Thayer, Alvin	Erie,	Erie,	1869
Thickstun, G.	Wattsburg,	"	1881
Thomas, A. G.	Freeport,	Armstrong,	1882
Thomas, Chas. H.	Philadelphia,	Philadelphia,	1879
Thomas, J. D.	Buchanan,	Allegheny,	1872
Thomas, O. W.	Arndtsville,	Adams,	1880
Thome, Wm. B.	Mastersonville,	Lancaster,	1881
Thompson, Benjamin	Landenberg,	Chester,	1870
Thompson, C. K.	Wellsboro',	Tioga,	1871
Thompson, L. M.	Mahanoy City,	Schuylkill,	1873
Thompson, Sydney	Spruce Creek,	Huntingdon,	1879
Thompson, W. R.	Washington,	Washington,	1878
Thomson, J. A.	Wrightsville,	York,	1872
Thomson, John C.	Bellwood,	Blair,	1880
Tobin, T.	Williamagone,	Clearfield,	1883
Trabert, J. W.	Reamstown,	Lancaster,	1876
Travers, D. B.	Steelton,	Dauphin,	1877
Treichler, A. C.	Elizabethtown,	Lancaster,	1871
Treichler, C. Galen	Honeybrook,	Chester,	1879

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Troth, Samuel N.	Philadelphia,	Philadelphia,	1863
Turnbull, Chas. S.	"	"	1879
Turnbull, Laurence	"	"	1864
Tweedle, J. B.	Weatherby,	Carbon,	1882
Twitmyre, J. H.	Sharpsville,	Mercer,	1875
Tyson, A. R.	Norristown,	Montgomery,	1879
Tyson, James	Philadelphia,	Philadelphia,	1875
Ulrich, Wm. B.	Chester,	Delaware,	1870
Umberger, J. R.	Dauphin,	Dauphin,	1870
Underwood, Gideon	Pittston,	Luzerne,	1870
Unger, David F.	Mercersburg,	Franklin,	1881
Van Kirk, T. R.	McKeesport,	Allegheny,	1870
Van Treis, J. M.	St. Thomas,	Franklin,	1876
Van Valzah, F. H.	Spring Mills,	Centre,	1881
Van Valzah, H. B.	Clearfield,	Clearfield,	1876
Van Valzah, Thos. H.	Lewistown,	Mifflin,	1882
Vanvoorhis, J. S.	Bellevernon,	Fayette,	1869
Varian, Wm.	Titusville,	Crawford,	1870
Vastine, J. H.	Numidia,	Columbia,	1875
Vogler, Geo. W.	Philadelphia,	Philadelphia,	1881
Wagenseller, B. F.	Selinsgrove,	Snyder,	1877
Waggoner, D. R.	McKean,	Bradford,	1882
Walk, J. W.	Philadelphia,	Philadelphia,	1883
Walker, R. L.	Mansfield,	Allegheny,	1870
Wallace, Wm.	Pittsburg,	Allegheny,	1883
Walter, H. B.	Harrisburg,	Dauphin,	1883
Walter, Jos. B.	Solebury,	Bucks,	1874
Waters, D. C.	Arnot,	Tioga,	1877
Weaver, G. P.	Norristown,	Montgomery,	1883
Weaver, J. G.	Strasburg,	Lancaster,	1881
Weaver, J. K.	Norristown,	Montgomery,	1875
Weaver, S. J.	Weaverville,	Northampton,	1875
Webb, W. H.	Philadelphia,	Philadelphia,	1875
Webb, W. W.	Wellsboro',	Tioga,	1869
Weber, C. Z.	Norristown,	Montgomery,	1883
Wehner, Jacob H.	Germantown,	Philadelphia,	1868
Weidman, W. Murray	Reading,	Berks,	1867
Weist, Jno.	York,	York,	1877
Welch, Wm. M.	Philadelphia,	Philadelphia,	1870
Welchans, Geo. R.	Lancaster,	Lancaster,	1879
Wells, J. Ralston	Philadelphia,	Philadelphia,	1869
Welsh, W. S.	Franklin,	Venango,	1872

NAMES.	POST-OFFICE.	COUNTY.	DATE OF MEM'SHIP.
Wentz, Wm. J.	New Providence,	Lancaster,	1876
Weseman, Geo. T.	Bainbridge,	Lancaster,	1880
Weymouth, W. C.	Renovo,	Lycoming,	1882
Whann, W. Lowrie	Franklin,	Venango,	1870
Whitcomb, Henry H.	Norristown,	Montgomery,	1881
White, T. H.	Williamsburg,	Blair,	1873
Whiteside, J. E.	Philadelphia,	Philadelphia,	1875
Wiggins, S. L.	Black Lick,	Indiana,	1882
Wiley, S. N.	Norristown,	Montgomery,	1883
Willard, De F.	Philadelphia,	Philadelphia,	1883
Wilmot, E. F.	Great Bend,	Susquehanna,	1875
Wilson, C. G.	St. Marys,	Elk,	1882
Wilson, H. R.	Parkersville,	Butler,	1882
Wilson, Jas. C.	Philadelphia,	Philadelphia,	1883
Wilson, W. S.	McVeytown,	Mifflin,	1883
Wireback, I. J.	St. Petersburg,	Clarion,	1882
Wishart, H. S.	Harrisonville,	Fulton,	1879
Witman, Henry O.	Harrisburg,	Dauphin,	1866
Wittig, Charles F.	Philadelphia,	Philadelphia,	1863
Wolfe, Sam'l	Skippackville,	Montgomery,	1876
Wollerton, S. H.	West Chester,	Chester,	1882
Wood, C. B.	Monongahela City,	Washington,	1880
Wood, E. A.	Pittsburg,	Allegheny,	1867
Wood, H. C.	Philadelphia,	Philadelphia,	1876
Woodbury, Frank	"	"	1880
Woods, J. F.	Boalsburg,	Centre,	1876
Woods, L. N.	Wheatland,	Mercer,	1878
Woods, W. W.	Stanton,	Jefferson,	1882
Woodward, Chas. E.	West Chester,	Chester,	1881
Worrell, John W.	Bellevernon,	Fayette,	1882
Yarrow, T. J.	Philadelphia,	Philadelphia,	1870
Yost, George P.	Logansville,	York,	1880
Young, J. W.	Williamsport,	Lycoming,	1883
Young, Theodore J.	Titusville,	Crawford,	1872
Zeigler, G. Winfield	Carlisle,	Cumberland,	1878
Zeigler, S. P.	"	"	1870
Zeigler, W. M. L.	Philadelphia,	Philadelphia,	1883
Zeiner, C. S.	Easton,	Northampton,	1883
Zern, J. G.	Weissport,	Carbon,	1883
Ziegler, Jacob L.	Mount Joy,	Lancaster,	1865
Ziegler, J. P.	"	"	1881

OFFICERS AND MEMBERS OF COUNTY SOCIETIES.

At the session held in Titusville, May, 1882, it was

Resolved, That each County Medical Society be instructed to report, with its list of members, the place and date of graduation, or other requirements for practice, of each, as registered under the action of the new law.

(These reports are published just as they were furnished.—W. B. A.)

Abbreviations.—Uni. Pa., University of Pennsylvania; J. M. C., Jefferson Medical College; Uni. Md., University of Maryland; Bellevue, Bellevue Hospital Med. Coll.; Wash. Uni., Washington University, Baltimore; Cinci. C. M. S., Cincinnati College of Medicine and Surgery; Coll. of P. & S., N. Y., College of Physicians and Surgeons, New York; Phila. M. C., Philadelphia Medical College; W. R. M. C., Western Reserve Medical College; Uni. N. Y., University of New York; L. I. M. C., Long Island Medical College.

ADAMS COUNTY.

Officers.

President,	A. Noel,	Bonneauville.
Vice-Presidents,	J. L. Sheetz,	New Oxford.
	V. H. B. Lilly,	McSherrytown.
Recording Secretary,	J. B. Scott,	Gettysburg.
Corresponding Secretary,	J. W. C. O'Neal,	"
Treasurer,	E. W. Mumma,	Bendersville.

Members.

Arendsville—
Thomas, O. W., Uni. Pa., '74.

Bendersville—
Mumma, E. W., Uni. Md, '51.

Bonneauville—
Noel, A., Uni. Md., '62.

Gettysburg—
Felty, J. C., Uni. Pa., '73.
Horner, Chas., Uni. Pa., '46.
O'Neal, J. W. C., Uni. Md., '44.
Scott, J. B., Uni. Pa., '80.

Littlestown—
Seiss, R. S., Uni. Md., '52.

McKnightstown—
Elderdice, R. B., Cinci. C. M. & S., '68.
Oyler, W. H., Uni. N. Y., '82.

McSherrytown—
Lilly, V. H. B., Uni. Md., '69.

Millerstown—
Beaver, A. P.; J. M. C., '78.

New Chester—
Melhorn, E., Phila. Med. C., '57.

New Oxford—
- Sheetz, J. L., Uni. Pa., '79.
- Waddelle, J. D., Wash. Uni., Baltimore, '72.

Petersburg—
- Dill, A. B., Bellevue, '65.
- Pearson, J. W., 30 yrs. practice.

ALLEGHENY COUNTY.

Officers.

President,	J. D. Thomas,	Pittsburg.
Vice-Presidents,	T. R. Evans,	"
	James H. Snodgrass,	"
Recording Secretary,	James G. Connell,	"
Assist. Recording Secretary,	A. V. Chessrown,	"
Corresponding Secretary,	John M. Duff,	Carrick.
Treasurer,	W. S. Huselton,	Allegheny.

Members.

Allegheny City—
- Bigham, Jas.
- Christie, J. H.
- Cole, W. W.
- Easton, A.
- Faulkner, R. B.
- Gilliford, R. H.
- Heckleman, H. W.
- Herron, W. M.
- Huselton, W. S.
- Jones, W. W.
- Kerr, J. W.
- King, C. B.
- Kirker, John
- Mabon, Thos.
- McCarrell, Jas.
- McCready, R. J.
- Miller, O. L.
- Mowry, R. B.
- Phillips, John S.
- Rankin, D. N.
- Rankin, W. D.
- Redick, Samuel T.
- Riggs, D. W.
- Riggs, E. S.
- Sarver, Wm.
- Schmauser, Theo.
- Shillito, G. M.
- Voight, C. H.
- Wright, J. H.

Beers—
- Jennings, S. D.

Carrick—
- Duff, John M.

Crafton—
- Foster, D. G.

Dixmont—
- Reed, Jos. A.

Mansfield—
- Walker, R. L.

Mansfield Valley—
- Parker, W. C.

McKeesport—
- Knox, Wm. F.
- Huffman, D. C.
- Vankirk, T. R.

Oakland—
- Connell, Jas. G.

Pittsburg—
- Asdale, W. J.
- Arnholt, M. A.
- Ayres, Samuel
- Batten, Jno. M.
- Blumberg, Albert
- Brewster, A. D.
- Case, A. G.
- Chessrown, A. V.
- Christy, T. C.
- Clark, H. H.
- Craighead, J. A.
- Criss, J. D.
- Daly, W. H.
- Davis, Thomas D.
- Dickson, John S.

Pittsburg—
Dickson, J. M.
Dickson, John
Duncan, J. A.
Duff, James H.
Dunn, J. C.
Emmerling, C.
Evans, T. R.
Fleming, A.
Foster, W. S.
Fundenburg, G. B.
Fundenburg, W. F.
Gallaher, R. C.
Gallaher, T. J.
Greene, Jos. B.
Grimes, J. J.
Halleck, W. E.
Hengst, D. A.
Hiett, Edw.
Jones, M. D.
Jones, W. W.
Kearns, W. D.
Kerr, Jas.
Koeller, Frank
Lee, J. W.
Lange, Chris.
LeMoyne, F.
Lippincott, J. A.
MacCord, Geo. T.
Macfarlane, J. W.
McCann, Jas.
McCready, J. A.
McDonald, Nesbit
McKelvey, W. H.
McNary, H. A.
McNeil, Geo. W.

Pittsburg—
Martin, E. W.
Miller, W. N.
Murdoch, J. B.
Neely, J. W.
O'Connor, H. R.
Oldshue, I. A.
Patten, N. N. P.
Pollock, A. M.
Rahauser, Geo. G.
Rex, T. A.
Shaw, Thos. W.
Shaw, W. C.
Snively, Whitmer
Snodgrass, Jas. H.
Speer, Alex
Staub, F. N.
Sterrett, J. P.
Stevenson, Edw. S.
Stevenson, Jas. M.
Stewart, J. S.
Sutton, R. S.
Thomas, J. D.
Wallace, J. A.
Wallace, Wm.
Werder, X. O.
Wiley, Chas. C.
Williams, Roger
Wishart, J. W.
Wood, E. A.

Sharpsburg—
Brinton, W. M.

Wilkinsburg—
Sample, John

Verona—
Hamilton, J. M.

ARMSTRONG COUNTY.

Officers.

President,	J. K. Maxwell,	Worthington.
Vice-President,	R. L. McCurdy,	Freeport.
Corresponding Secretary,	M. H. Alter,	Kittanning.
Recording Secretary,	J. T. McCulloch,	Freeport.
Treasurer,	W. H. Stewart,	Kittanning.

MEMBERS.

Allegheny City (Alle'y)—
Johnston, A. D.
Apollo—
M'Cauly, R. E., Coll. of P. & S., N. Y., '81.
Cochran Mills—
McKee, J. W., Uni. Cleveland, '72.
Cowansville—
Ralston, R. G.
Dayton—
Calhoun, F. C.
Elderton—
Mateer, R. M., J. M. C., '73.
Emlenton (Venango)—
Hall, J. E., J. M. C., '69.
Freeport—
Cook, W. J., Miami M. C.
Gillespie, C. B., Phila. M. C., '58.
McCulloch, J. T., J. M. C., '77.
McCurdy, R. L., W. R. M. C., '53.
Morrow, W. L., J. M. C., '55.
Thomas, A. G., Uni. N. Y., '66.
Goheenville—
Walker, R. A.
Kelly Station—
Heilman, U. O., Coll. P. & S., Balt., '80.
Kittanning—
Allison, T. H., J. M. C., '54.
Allison, T. M., J. M. C., '72.
Alter, M. H., Coll. of P. & S., Balt., '78.
Kittanning—
Bowman, R. P.
Cunningham, J. G., J. M. C., '69.
Jessup, Chas. J., J. M. C., '74.
Jessup, S. A. S., J. M. C., '79.
Stewart, W. H., J. M. C., '71.
Leechburg—
Armstrong, J. A.
Hunter, R. P., J. M. C., '69.
Montgomery, W. H., Coll. P. & S., Balt., '81.
Mahoning—
Marshall, R. P., Miami M. C., '73.
Manorville—
Deemer, J. T., J. M. C., '79.
Parker—
Hoover, A. M., Cleveland M. C., '69.
Phœnix—
Metzler, S. N.
Rural Valley—
Stockdale, T. F., J. M. C., '78.
Saltsburg (Ind.)—
Ainsley, W. G.
Slate-lick—
Cheesman, J. C., Miami M. C., '78.
McKee, J. C., Cinci. C. M. & S., '76.
South Bend—
George, M. R., J. M. C., '75.
Worthington—
Maxwell, J. K., Univ. Pa., '67.

BEAVER COUNTY.

OFFICERS.

President,	S. A. Craig,	Freedom.
Vice-Presidents,	J. H. Wilson,	Beaver.
	Theo. P. Simpsom,	Beaver Falls.
Secretary,	W. S. Ramsey,	West Bridgewater.
Treasurer,	D. S. Marquis,	Rochester.

Members.

Allegheny City (Alle'y Co.)—
Langfitt, W. J., Rush M. C., '67.
Baden—
Boal, G. Y., Cinci. C. M. & S., '70.
Beaver—
Scroggs, Jas., Jr., Cinci. C. M. & S., '72.
Wilson, J. H., Bellevue, '76.
Beaver Falls—
Elliott, J. S., 30 years' practice.
Grim, W. H., J. M. C., '69.
Simpson, Theo. P., Bellevue, '77.
Darlington—
Vance, B. A., Miami M. C., '77.
Economy—
Feicht, Benj.
Freedom—
Craig, Stephen A., Cinci. C. M. & S., '77.
New Brighton—
Gale, C. T., J. M. C., '78.
McConnell, H. S., Bellevue, '75.
McKinney, David, Jr., J. M. C., '60.
Post, S. B.
Simpson, W. C., Bellevue, '73.
White, J. K., Uni. Louisville, '77.
New Galilee—
McGeehan, W. A., Uni. Wooster, '73.
Rochester—
Marquis, David S., Med. Coll. Ohio, '45.
West Bridgewater—
Ramsey, W. S., Western Reserve, '77.

BERKS COUNTY.

Officers.

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Corresponding Secretary,	John B. Brooke,	"
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Members.

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Brobst, John A., Penn. M. C., '57.
Byerle, Geo. W , J. M. C., '53.
Centrepoint—
Hoffman, J. A.
Fredericksburg (Lebanon Co.)—
Shirk, Levi A., Uni. Pa., '73.
Kutztown—
Trexler, J. S.
Leesport—
Brobst, Edward, Penn. M. C., '53.
Lenhartsville—
Seaman, J. K., Bellevue M. C., '69.
Maiden Creek—
Hunsberger, Wm. E., J. M. C., '67.
Molltown—
Rupp, J. D.
New Jerusalem—
Hertzog, H. F.
Pricetown—
Weber, Chas., Uni. Tubingen, '49.

Reading—
- Bachman, C. W., J. M. C., '81.
- Becker, John.
- Brooke, John B., J. M. C., '58.
- Cleaver, Israel, Uni. Pa., '63.
- Coblentz, Jos., Uni. Pa., '50.
- Dundor, A. B., J. M. C., '64.
- Good, Frank H., Uni. Pa., '78.
- Herbst, H. Herbert, Uni. Pa., '81.
- Hinnershotz, J. H.
- Kuhn, L. DeB., Uni. Pa., '54.
- Kurtz, Samuel L., J. M. C., '54.
- Kurtz, J. Ellis, J. M. C., '77.
- Loose, C. G., Uni. Pa., '68.
- Muhlenberg, Wm. F., Uni. Pa., '72.

Reading—
- Raudenbush, Abraham, J. M. C., '64.
- Rieser, Howard.
- Sterley, J. B., Penn. M. C., '57.
- Weidman, W. Murray, Uni. Pa., '60.

Rehrersburg—
- Bickle, Geo. H., J. M. C., '78.

Sinking Spring—
- Shearer, Jas. Y., J. M. C., '62.

Temple—
- Matthews, Jas. M., J. M. C., '40.

Wernersville—
- Hain, J. H.
- Myers, J. D.

BLAIR COUNTY.

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	Robert C. Irwin,	Hollidaysburg.
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Altoona—
- Arney, G. F., J. M. C., '78.
- Closson, C. H., J. M. C.
- Crosthwaite, D. W., Uni. Pa., '81.
- Fay, John, J. M. C., '55.
- Findley, Wm. M., Uni. Pa., '67.
- Finley, Wm. R. (Certificate).
- Jacob, Harry, J. M. C., '79.
- Miller, E. S., Uni. Pa., '78.
- Ross, S. M., J. M. C., '50.
- Ross, W. S., Uni. Wooster, '76.

Bellwood—
- Levengood, W. Y.
- Thompson, John C., J. M. C., '78.

Claysburg—
- Johnston, J. W., Albany M. C., '65.

Duncansville—
- Confer, D. C., Uni. Pa., '81.

Hollidaysburg—
- Hays, D. S.
- Irwin, Crawford, J. M. C., '44.
- Irwin, Robert C., Uni. Pa., '79.
- Landis, J. A., Uni. Md., '28.
- Roller, W. C., J. M. C., '61.
- Smith, Geo. W., Uni. Pa., '62.

Martinsburg—
- Bloom, F. G., Uni. Pa.
- Bloom, Homer C., Uni. Pa., '78.
- Bonebreak, D. W., Bellevue, '64.

Mines—
- Brown, J. M., Uni. Louisville, '82.

Newry—
- Black, M. F., J. M. C., '73.

Roaring Spring—
- Stayer, A. S., J. M. C., '73.

Sabbath Rest—
- Christy, R. W., J. M. C., '74.

Spruce Creek (Huntingdon Co.)—
Thompson, Sidney, J. M. C.
Tyrone—
Burket, G. W., Western Reserve, '57; Bellevue, '67.
Gemmill, J. M., J. M. C., '70.
Smith, Jas. M., Uni. Pa., '70.
Williamsburg—
Ake, Jos. H., J. M. C., '50.
Arnold, J. F., N. Y. Uni., '67.
Ross, John D., Uni. Pa., '32.
White, T. H., J. M. C., '70.

BRADFORD COUNTY.

Officers.

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	J. W. Lyman,	Towanda.
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Allen, E. P., Berkshire M. C., '47.
Barclay—
Hillis, W. J., J. M. C., '58.
Johnson, C. H., Buffalo M. C., '73.
Burlington—
Tracey, G. P., J. M. C., '59.
Camptown—
Homet, Volney, J. M. C., '56.
Dushore (Sullivan Co.)—
Waddel, W.
Franklindale—
Kilbourn, H. B., J. M. C., '79.
Laceyville (Wyoming Co.)—
Ely, R. H.
Laporte (Sullivan Co.)—
Colt, S. F., 40 years' practice.
LeRaysville—
Dusenbury, C. S., Bellevue, '65.
Monroeton—
Rockwell, O. H., Uni. Pa. '73.
Orwell—
Conklin, Guatavus, J. M. C., '82.
Sayre—
Anderson, M. E., Uni. N. Y., '80.
Scott, C. H., J. M. C., '78.
Standing Stone—
Clagget, W. L., Ohio M. C., '74.
Sugar Run—
Quick, P. A., Buffalo Uni., '74.
Wilson, H. A., Buffalo Uni., '82.
Terrytown—
Horton, Geo. F., Geneva M. C, '64.
Towanda—
De la Montayne, L., J. M. C., '61.
Johnson, T. B., Bellevue M. C., '68.
Ladd, C. K., Uni. Pa., '77.
Lyman, J. W., J. M. C., '49.
Newton, D. N., Penn. M. C., '48.
Newton, F. G., J. M. C., '80.
Payne, E. D., J. M. C., '57.
Pratt, Chas. M.
Woodburn, S. M., Uni. Pa., '72.
Troy—
Tracey, E. G.—No diploma.
Ulster—
Mills, Edw., Fairfield M. C. (N. Y.), '39.
West Burlington—
Carrier, Chas. W, Uni. Buffalo, '62.
Wysox—
Reed, Chas. H., J. M. C., '80.

BUCKS COUNTY.

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Bedminster—
Nonamaker, Noah S.
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Pursell, Howard.
Buckingham—
Foulke, Joseph, Uni. Pa., '54.
Carversville—
Wilson, S. H.
Doylestown—
Kirk, Wm. H.
Knight, Robt B.
Parry, Susan.
Swartzlander, Frank, Uni. Pa., '63.
Dublin—
Moyer, Daniel P.
Fallsington—
Richards, J. N.
Hartsville—
Doughty, Wm. E., Uni. Pa., '68.
Hilltown—
Kratz, Harvey, Uni. Pa., '62.
Langhorne—
Allen, Thos. L.
Plumsteadville—
Krause, J. H., Starling M. C., Ohio, '72.
Ottsville—
Nash, A. B.
Point Pleasant—
Cooper, A. M., J. M. C., '56
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Walter, Joseph B., Uni Pa., '68.

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Breakneck—
Brooks, Floyd V.
Davis, L. G.
Irwin, Wm.
Kersting, Theo.
Butler—
Bredin, Stephen
Byers, John E.
Graham, Samuel
Neyman, A. M.
Pillow, R. H.
Connoquenessing—
Christy, J. L.
Harmony—
Lusk, Jos. S.
Jacksville—
Cowden, W. B.
Karn's City—
Harper, David
North Hope—
Hoover, N. M.
Portersville—
Wilson, H. R.
Wilson, W. R.
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Clark, W. N.

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Mancher, A. J.
Mancher, J. E.
East Conemaugh—
Wilson, J. C.
Ebensburg—
Kennedy, C. V. B.
Zimmerman, G. A.
Gallitzin—
Troxell, T. S.
Johnstown—
Cooper, J. M.
Evans, D. W.
Lowman, John
Lowman, W. B.
Madden, W. B.
Marbourg, E. L. W.
Johnstown—
Marbourg, H. W.
Schill, F.
Sheridan, C.
Sheridan, Jno. C.
Swan, S. M.
Walters, W. W.
Wakefield, A. N.
Williams, H. H.
South York—
Luke, J. C.
Summer Hill—
Barnett, W. A.
Vinco—
Wakefield, J. C.
Wilmore—
Blaisdell, J. C.

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Vice-President,	M. J. Donnelly,	Summit Hill.
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Kromer, J. C.
Beaver Meadow—
Allen, C. L.
Buck Mountain—
Prevost, L. W.
Hazleton—
Longshore, W. R.
Lansford—
Davis, B. H.
Lehighton—
Dorheimer, W. A.
Horn, C. T.
Lehigh Tannery—
Holcomb, J. T.
Mahoning—
Keiser, P. D.
Mauch Chunk (East)—
Bowman, Jacob

Mauch Chunk—
Horn, J.
Leonard, R.
Nesquehoning—
Baxter, C. S.
Parryville—
Kutz, W. L.
Summit Hill—
Donnelly, M. J.
Kistler, E. H.
Weatherly—
Hoffman, C. J.
Latham, P. H.
Tweedle, J. B.
Weissport—
Zern, J. G.

CENTRE COUNTY.

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Vice-Presidents,	J. F. Woods,	Boalsburg.
	E. W. Hale,	Bellefonte.
Secretary and Treasurer,	J. Y. Dale,	Lemont.

Members.

Aaronsburg—
Musser, C. S., J. M. C., '80.
Musser, P. T., J. M. C., '53.
Bellefonte—
Dorworth, E. S., Uni. N. Y., '65, and Pa., '74.
Hale, E. W., Uni. Pa., '48.
Harris, Geo. F., Uni. Pa., '64.
Hayes, Thos. R., Chicago M. C., '64.
Hibler, Augustus, Uni. Freiburg, '53.
Boalsburg—
Woods, John F., J. M. C., '71.
Centre Hall—
Alexander, J. F., Uni. Wooster, '74.
Jacobs, W. A., Uni. Pa., 75.
Fleming—
Blair, J. M., Uni. Pa., '54.
Russell, E. A.
Lemont—
Dale, J. Y., Uni. Pa., '63.
Millheim—
Mingle, D. H., J. M. C., '71.
Pine Grove Mills—
Smith, J. R., 38 years' practice.
Snow Shoe—
Glenn, J. P.
Thompson, J. A., J. M. C., '78.
Spring Mills—
Van Valzah, F. H., J. M. C., '70.
Stormstown—
Kline, G. W., Uni. Pa., '82.
Zion—
Fisher, P. S., Uni. Pa., '68.

CHESTER COUNTY.

Officers.

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Vice-Presidents,	Ephraim Hopkins,	Marshalton.
	Jacob Price,	West Chester.
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Corresponding Secretary,	S. R. Wollerton,	"
Treasurer,	Chas. E. Woodward,	"

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Atglen—
Pownall, Howard W., J. M. C., '79.
Blue Rock—
Frankhausen, F. W., J. M. C., '80.
Brandywine Manor—
Thompson, N. G., Phila. Col. of Med., '52.
Coatesville—
Spratt, Geo. R., Uni. Pa., '64.
Swing, E. V., Uni. Pa., '67.
Downingtown—
Parke, Thos. E., Uni. Pa.
Dugdale—
Stebbins, Sumner, Uni. Pa., '34.
Glen Lock—
Carey, R. B., Uni. Mich., '71.
Honey Brook—
Treichler, C. Galen, Uni. Pa., '65.
Kennett Square—
Price, Henry R., Uni. Pa., '80.
Landenburg—
Thompson, Benj., Pa. M.C., '51.
Lewisburg (Union Co.)—
Groff, G. G., Long Island Coll. Hosp., '77.
London Grove—
Stubbs, Jos. H., J. M. C., '72.
Marshalton—
Hopkins, Ephraim, Uni. Md., '59.
New London—
Fulton, James, J. M. C., '59.
Oxford—
Houston, J. Willis, J. M. C., '57.
Pomeroy—
Taylor, Thos. A., J. M. C., '72.
Unionville—
Perdue, Wm. R., Uni. Pa., '74.
West Chester—
Dunn, Thos. D., Uni. Pa., '81.
Hoskins, Percy, J. M. C., '75.
Ingram, Thos. D., J. M. C., '75.
Jackson, Edw., Uni. Pa., '78.
McClurg, John R., J. M. C., '46.
Massey, Isaac, J. M. C., '64.
Price, Jacob, J. M. C., '50.
Rothrock, J. T., Uni. Pa., '69.
Wollerton, S. H., Uni. Pa., '80.
Woodward, Chas. E., Uni. Pa., '74.
West Grove—
Ewing, R. B., Uni. Pa., '65.
West Whitehead—
Patrick Elwood, Uni. Pa., '80.

CLARION COUNTY.

Officers.

President,	John Criswell,	New Bethlehem.
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Secretary,	J. F. Ross,	Clarion.
Treasurer,	G. G. Shoemaker,	Church P. O.

Members.

Callensburg—
Meals, N. M., W. R. M. C., '74.
Meals, S. D., W. R. M. C., '72.
Church P. O.—
Shoemaker, Geo. G., Uni. Pa., '76.
Clarion—
Reid, A. M., Uni. Mich., '78.
Ross, James, Uni. Pa., '53.
Ross, J. F., Uni. Pa., '68.
Edenburg (Knox P. O.)—
Leadenham, Jos. W., L. I. H. C., '76.
Lamartine—
Clover, W. M., Eclectic Med. Inst. Cinci., '57.
Fitzgerald, J. M., W. R. M. C.
New Bethlehem—
Criswell, John, 26 yrs. practice.

Sligo—
Beck, J N., 23 yrs. practice.
Strattonville—
Barber, J. H., 35 yrs. practice.
St. Petersburg—
McComb, S. F., J. M. C., '79.
Wireback, I. J., Uni. Pa., '66.

CLEARFIELD COUNTY.

Officers.

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Members.

Clearfield—
Burchfield, J. P., Uni. Mich., '62.
Hartswick, J. G., Uni. Pa., '54.
Stewart, S. C., J. M. C., '81.
Van Valzah, H. B., J. M. C., '73.
Curwensville—
Winslow, B., J. M. C., '79.
Du Bois—
Means, W. A. (not registered).
Petigrew, S. H. (not registered).
Smathers, W. J., J. M. C., '73.
Houtzdale—
Hogue, D. A., J. M. C., '75.
Houtzdale—
Vaughan, J. E. (not registered).
Whittier, G. M., Bellevue, '75.
Kylertown—
Thorne, A. C.
Luthersburg—
Spackman, R. V., J. M. C., '70.
Osceola—
Read, F. B., J. M. C., '67.
Philipsburg—
Allport, Hobart.
Lytle, S. F.
Williamsgrove—
Tobin, Thos., Buffalo Uni., '82.

COLUMBIA COUNTY.

Officers.

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Vice-President,	F. W. Redeker,	Espy.
Secretary and Treasurer,	J. R. Evans,	Bloomsburg.

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Bloomsburg—
Evans, J. R., Penna. M. C., '59.
Gardner, B. F., M. C. Va., '61.
McKelvey, J. B., Uni. Pa., '48.
McReynolds, H. W., Uni. Pa., '48.
Reber, Wm. J., M C., '63.
Buckhorn—
Montgomery, Jas. R., J. M. C., '80.
Catawissa—
Kline, L. B., J. M. C., '67.
Robins, Jno. K., J. M. C., '42.
Vastine, J. H.
Centralia—
Lashelles, R. M., 10 yrs. practice.
Espy—
Redeker, F. W., J. M. C., '78.
Jerseytown—
Swisher, T. J., Bellevue, '62.
Numidia—
Mears, G. I., J. M. C., '78.
Orangeville—
Ammerman, C. W., Cleveland M. C., '73.
McGargle, O. A., M. C. Vt., '59.

CRAWFORD COUNTY.

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	Almira F. Rhodes,	"
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Corresponding Secretary,	Geo. W. Barr,	"

Members.

Cambridge—
Rhoads, Miss A. F., W. M. C., Philadelphia, '79.

Centreville—
Clark, G. L.

Cochranton—
Hassler, Jas. P.

Hydetown—
Baker, W. A., Cleve. M. C., '67.

Meadville—
Best, David
Calvin, D. M.
Dewey, E. H.

Mosiertown—
Doty, L. L.

Spartansburg—
Waid, A. P., Uni. Buffalo, '74.

Titusville—
Barr, Geo. W., Uni. Buffalo, '56.
Moody, Geo. O., Dartmouth Med. Dept., '62.
Varian, Wm., Pa. M. C., '54.
Young, Theo. J., Uni. Pa., '68.

Townville—
Farrelly, Ellis M., Ky. Sch. Med., '64.

CUMBERLAND COUNTY.

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	W. H. Longsdorf,	Carlisle.
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Corresponding Secretary,	G. W. Ziegler,	"
Treasurer,	S. P. Ziegler,	"

Members.

Allen—
Koons, P. R., J. M. C., '79.

Big Spring—
Grove, Geo., J. M. C., '36.

Camp Hill—
Bowman, J. W., J. M. C., '77.

Carlisle—
Bixler, J. R., J. M. C., '66.
Dale, W. W., J. M. C., '38.
Herman, A. J., Uni. Pa., '46.
Keiffer, S. B., Uni. Pa., '51.
Krise, C. W., Uni. Md., '71.
Longsdorf, W. H., J. M. C., '56.

Carlisle—
Reily, W. F., Uni. Pa., '75.
Sibbet, R. Lowry, Uni. Pa, '59.
Stewart, Thomas, Sr., W. R. M. C. Ohio, '57.
Stewart, Thomas, Jr., W. R. M. C. Ohio, '74.
Ziegler, G. W., Uni. Pa., '74.
Ziegler, S. P., J. M. C., '45.

Lisburn—
Trimmer, J. W., Rush M. C., Chicago, '75; Bellev. Hosp. M. C., '76.

Mechanicsburg—
Brandt. E. B., J. M. C., '55.
Hummel, C. C., J. M. C., '77.
Lenher, L. H., Pa. M. C., '43.
Long, R. P., J. M. C., '78.
Mosser, E. N., J. M. C., '70.
Short, R. N., Miami M. C. Cin., '71.
New Kingston—
Fulk, Levi, Bellev. Hosp. M. C., '74.
Newville—
Brehm, S. H., J. M. C., '66.
Newville—
Claudy, J. C., Bellevue Hosp. M. C., '65.
Newville—
Stewart, W. G., W. R. M. C., '62.
Plainfield—
Van Camp, J. E., Uni. Mich., '70.
Sheppardstown—
Boyer, J. H., J. M. C., '78.
Shiremanstown—
Bruckart, W. S., J. M. C., '70.
Shippensburg—
Koser, J. J.
Marshall, J. B.
Stewart, R. C., Uni. Pa., '72.
Witherspoon, W. M., Uni. Pa., '69.
Siddonsburgh (York Co.)—
Prowel, W. R.

DAUPHIN COUNTY.

Officers.

President,	J. Z. Gerhard,	Harrisburg.
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Members.

Churchville—
Putt, M. O., Uni. Pa., '73.
Dauphin—
Poffenberger, A.T., J. M. C., '79.
Umberger, J. R., Phila. M. C., '52.
Fort Hunter—
Heckert, C. J., L. I. M. C., '75.
Halifax—
Bischoff, H. W., Uni. Pa., '66.
Harrisburg—
Bishop, W. T., Rush M. C., '79.
Bowman, J. D., J. M. C., '56.
Cleaves, Margaret A., Iowa St. Uni., '56.
Coover, D. H., J. M. C., '74.
Coover, E. H , J. M. C., '50.
Coover, F. W., Uni. Pa., '75.
Coover, J. H., J. M. C., '63.
Coover, W. H., J. M. C., '57.
Harrisburg—
Crisswell, J. T., J. M. C., '72.
Duff, W. L., Ohio M. C., '74.
Dunott, Thos. J., J. M. C., '52.
Ellenberger, J. W., J. M. C., '79.
Fager, C. M., Uni. Pa., '81.
Free, J. Edw., C. of P. & S. Balt. '82.
Fritchey, J. A., Uni. Pa., '79.
Funk, D. S., Uni. Pa., '81.
Garver, Jane K., Woman's M. C., '72.
Gerhard, J. Z., Uni. Pa., '68.
Gorgas, S. R., J. M. C., '74.
Hamilton, Hugh, Uni. Pa., '71.
Hartman, Paul A., J. M. C., '74.
Hay, J. W., Uni. Pa., '71.
Hursh, Geo. R., J. M. C., '57.
Hutton, J. C., Uni. Pa., '67.

Harrisburg—
Kemp, Agnes, Woman's M. C., '79.
McGowan, H., Uni. Pa., '68.
Orth, H. L., Uni. Pa., '66.
Rahter, C. A., L. I. C. H., '64.
Reily, Geo. W , Uni. Pa., '57.
Seabrook, C. C., Uni. Pa., '78.
Seiler, J. P., Uni. Pa., '65.
Seitz, J. L., J. M. C., '82.
Smith, J. K., J. M. C., '75.
Steese, John J., J. M. C., '75.
Stehley, Geo. D., Uni. Pa., '75.
Walter, H. B., J. M. C., '51.
Witman, H. O., J. M. C., '81.
Hummelstown—
Rupp, H., Uni. P., '61.
Linglestown—
Smith, Chas. H., Uni. Pa., '72.
Lykens—
Myers, H. K., Uni. Md., '67.
Middletown—
Beane, W. H., J. M. C., '62.
Mish, Geo. F., Uni. Pa., '53.
Millersburg—
Bowman, J. F., J. M. C., '65.
Steelton—
Saul, Chas. H., Uni. Pa., '78.
Seibert, W. H., Uni. Pa., '74.
Traver, D. B., J. M. C., '69.
Union Deposit—
Keller, D. C., 31 years' prac.
Wiconisco—
Schofield, E. Lane, Uni. Pa., '67.
Williamstown—
Matter, G. F., J. M. C., '66.
McGill, Peter, Uni. Pa., '79.
Park, J. W., J. M. C., '78.

DELAWARE COUNTY.

Officers.

President,	W. B. Ulrich,	Chester.
Vice-President,	R. H. Milner,	Chester.
Secretary,	Linnæus Fussel,	Media.
Treasurer,	John B. Weston,	Chester.

Members.

Chester—
Allen, John M. (Honorary.)
De Lannoy, C. W., J. M. C., '81.
Forwood, J. F. M., Uni. Pa., '66.
Graham, F. Ridgely, J. M. C., '50.
Harvey, Elwood, Uni. Pa., '43.
Jefferis, D. W., Uni. Pa., '65.
Milner, R. H., Uni. Pa., '68.
Price, Hannah J.
Rose, David, Penna. M. C., '46.
Seidell, F. H.
Ulrich, Wm. B., Phila. C. of M., '50, and New Orleans School of Med. '66.
Weston, John B., Uni. Pa., '78.
Clifton Heights—
Bartleson, S. P., J. M. C., '54.
Given, Robert A.
Clifton Heights—
Phillips, J., Willoughby, Royal Coll. Surg., Eng., '74.
Concordville—
Darlington, Hillborn, Uni. Pa., '41.
Darlington, Horace H., Uni. Pa., '79.
Elwyn—
Fish, W. B., Albany M. C., '79.
Kerlin, Isaac N., Uni. Pa., '56.
Fernwood—
Bartleson, H. C., J. M. C., '70.
General Wayne—
Egbert, Jos. C., Uni. Pa., '80.
Lenni—
Murray, F. Marion, J. M. C., '77.
Lima—
Trimble, Samuel, Uni. Pa., '67.

Media—
Baker, Frances N., W. M. C., '77.
Dickeson, W. T. W., Uni. Pa., '49.
Fussell, Linnæus, Uni. Pa., '67.
Little, W. S.
Osborne, A. E.
Stellwagen, T. C. (Honorary.)
Newtown Square—
Thomas, John G.
Ridley Park—
Partridge, C. L., J. M. C., '74.
Sharon Hill—
Longstreth, M. Fisher, Uni. Pa., '56.
Thornton—
Hornor, Joseph H., J. M. C., '74.
Upland—
Bullock, L. M., J. M. C., '81.

ELK COUNTY.

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Benezette—
Haskins, C. A.
Dagus Mines—
Free, Spencer M., Coll. Phys. and Surg. Balt., '80.
Sapp, F. W.
Williams, T. R., Coll. Phys. and Surg. Balt., '82.
Driftwood (Cameron Co.)—
Schneider, Chas.
Emporium (Cameron Co.)—
Bardwell, E. O.
De Long, W. H.
Kersey—
Straessley, H., Uni. Tubingen, '46.
Ridgway—
Waid, J. S.
Williams, W. L., Uni. City N. Y., '72.
Woodruff, J. D.
St. Mary's—
Hartman, William B., Penna. M. C., '55.
Russ, Eben J., National M. C., '61.
Wilson, C. G., J. M. C., '74.
Wilcox—
Ernhout, E. L., Bellevue Hosp. M. C., '79.
Strait, A. M.

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Corry—
Bonsteel, A. S., Belle. M. C., '72.
Elston, G. A.
Kibler, C. B., Uni. Buffalo, '70.
Corry—
Mackrees, H. O., Uni. Buffalo, '67.
Pickett, M., Uni. Buffalo, '69.

Edinboro—
Hotchkiss, S. B.
Erie—
Brandes, C., 37 years' practice.
Clarke, J. T., Nat. M. C., '70.
Dunigan, M. C.
Evans, W. C., W. R. M. C., '54.
Gray, T. H.
Lovett, A. S., Ann Arbor Uni., '71.
Randall, A. Z., Ann Arbor Uni., '64.
Silliman, J. E., J. M. C., '74.
Spencer, H. A., W. R. M. C., '51.
Erie—
Stewart, J. L., Uni. Pa., '48.
Erie—
Stranahan, C. W., J. M. C., '67.
Thayer, A., 37 years' practice.
Woods, A. A., Miami M. C., '76.
Girard—
Taylor, I. N., Uni. Pa., '66.
McKean—
Waggoner, D. R., Ohio M. C., '71.
North East—
Griffin, J. K., Uni. Buffalo, '65.
Loop, D. D., Uni. Buffalo, '65.
Putnam, N. B.
Wattsburg—
Thickstun, G., Bellevue H. M. C., '64.

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Assist. Record. Secretary,	W. S. Duncan,	Brownsville.

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Hazlett, Isaac C., Uni. Pa., '70.
Van Voorhis, John S., J. M. C., '47.
Worrell, J. W., Uni. Pa., '81.
Broadford—
Reagan, R. S.
Strickler, A. W.
Brownsville—
Duncan, Wm. S., Uni. Pa., '58.
Grooms, J. B.
Gumnish, G. L.
Jackson, Isaac, J. M. C., '47.
Nelan, J. R., Uni. Pa., 77.
Reichard, C. C., North Western Uni., Chicago, '70.
Shoemaker, B., Uni. Pa., '70.
Connellsville—
Buttermore, Smith, 12 years' practice.
Philip, Ellis, J. M. C., '67.
Singer, J. J., J. M. C., '69.
Connelsville—
Torrence, Rogers.
White, T. H.
Dawson—
Dravo, L. H.
Dunbar—
Clarke, R. W., Uni. Mich., '71.
Sheplar, J. T., Bellevue Hosp. M. C., 74.
Fayette City—
Gordon, J. M.
Masontown—
Neff, Geo. W., J. M. C., '70.
McClellandtown—
Sangster, J. P., Charity Hosp. M. C., Cleveland, '68.
Merrittstown—
Eastman, H., not registered.
New Geneva—
Greene, Wilson, 22 years' practice.

Perryopolis—
Davidson, J. H., Western Reserve M. C., '70.
Smithfield—
Mathiot, H. B., J. M. C., '52.
Uniontown—
Ewing, Jas. B., J. M. C., '66.
Fuller, Smith, J. M. C., '47.
Uniontown—
Gaddis, Levi S., J. M C., '73.
Robinson, F. C., J. M. C., '51.
Sturgeon, John D.
Sturgeon, Wm. H., 21 years' practice.
Vanderbilt—
Hazlett, J. D.

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Officers.

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Treasurer,	J. L. Suesserott,	"

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Brallier, E., J. M. C., '68.
Hull, Geo. S., Uni. Pa., '76.
Lane, S. G., Uni. Pa., '49.
McLanahan, T. J., J. M. C., '65.
Merklein, C. H., Uni. Pa., '70.
Montgomery, John, J. M. C., '58.
Palmer, Chas., Uni. Pa., '78.
Seibert, John P., J. M. C., '75.
Senseny, E. N., J. M. C., '70.
Suesserott, J. L., J. M. C., '81.
Suesserott, L. F., Uni. Pa., '79.
Dry Run—
Flickenger, J. H., Penna. M. C. '51.
Hinchman, W. A., Uni. Md., '73.
Fayetteville—
Hartzell, E., Penna. M. C., '47.
Greencastle—
Gilland, J. C., J. M. C., '76.
Green Village—
Maclay, David, Uni. Pa., '75.
Harrisonville (Fulton Co.)—
Wishart, H. S.
Mercersburg—
Unger, D. F., Bellevue Hosp. M. C., '66.
Walker, T. H., Penn. M C., '69.
Saint Thomas—
Ramsay, R. W., J. M. C., '74.
Van Tries, J. M. (Retired.)
Sylvan—
Gerry, M. M., Uni. Md., '46.
Upper Strasburg—
Gelwix, J. M., M. C., '66.
Hunter, W. A., over 10 years' practice.
Upton—
Noble, W. P., J. M. C., '69.
Waynesboro—
Amberson, J. B., Uni. Pa., '68.
Snively, I. N., J. M. C., '63.
Strickler, A. H.
Welsh Run—
Chritzman, H. G., Penna. M. C., '59.

HUNTINGDON COUNTY.

Officers.

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Viee-President,		
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Huntingdon—
- Brumbaugh, A. B., Uni. Pa., '66.
- Miller, D. P., J. M. C., '64.

Orbisonia—
- James, Geo. W. C., Uni. Pa., '54.

Robertsdale—
- Crewitt, Jno. A., C. P. & S., Balt., '76.

INDIANA COUNTY.

Officers.

President,	L. S. Clagett,	Blairsville.
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Secretary,	N. Frank Ehrendfeld,	"
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Members.

Blacklick—
- Wiggins, S. L., J. M. C., '73.

Blairsville—
- Clagett, L. S., J. M. C., '77.

Grant P. O.—
- Blose, J. U.
- Hughes, J. W., Cinci. C. M. & S., '63.
- Rutledge, S. R., J. M. C., '70.

Indiana—
- Anderson, Wm., J. M. C., '52.
- Ehrenfeld, N. F., Uni. Pa., '80.
- Purington, A. F., Bowdoin C., '62.
- Torrence, J. M., J. M. C., '73.

Penn Run—
- Cameron, Morris, J. M. C., '80.
- McMullen, Tho., J. M. C., '56.

Saltsburg—
- Ansley, W. B., J. M. C., '67.
- Carson, Thos., J. M. C., '65.
- Larimer, W. T., J. M. C., '79.

Shelocta—
- McChesney, R.
- McChesney, W. A., Cinci. C. M. & S., '77.
- Marland, T. J.

West Lebanon—
- Hosack, Wm.

JEFFERSON COUNTY.

Officers.

President,	M. M. Rankin,	Brockwayville.
Vice-President,	T. C. Lawson,	Brookville.
Secretary,	A. F. Balmer,	"
Corresponding Secretary,	W. F. Matson,	"
Treasurer,	R. B. Brown,	Summerville.

Members.

Allegheny (Allegheny Co.)—
McKibbon, J. A., Bellevue H. M. C.; '79.
Big Run—
Cox, A. P., Cinci. M. C., '77.
Brockwayville (Clarion Co.)—
Rankin, M. M., Ohio M. C., '76.
Brookville—
Balmer, A. F., J. M. C., '75.
Lawson, T. C., J. M. C., '71.
Matson, C. M., 24 yrs. practice.
Matson, W. F., Cleveland M. C., '77.
Corsica (Clarion Co.)—
Thompson, John
Limestone (Clarion Co.)—
Johnson, S. C., J. M. C., '79.
Millville (Clarion Co.)—
Henry, J. A., Keokuk M. C.
New Bethlehem (Clarion Co.)—
Paine, D. L., M. C. Columbus, Ohio.
Punxsutawney—
Beyer, W. F., J. M. C., '79.
Hamilton, S. S., M. C. Columbus, '78.
Reynoldsville—
Alexander, W. B., J. M. C., '68.
Boyles, R. M., Cleveland M. C., '77.
Foust, J. W., 15 years' practice.
Gibson, W. M. B., 11 years' practice.
King, J. C.
Richardsville—
Hilliard, G. R., J. M. C., '72.
Ridgway (Elk Co.)—
Thompson, John, St. Louis M. C.
Stanton—
Woods, W. W., J. M. C., '77.
Summerville—
Brown, R. B., Ohio M. C., '52.

LACKAWANNA COUNTY.

Officers.

Presidents,	Thomas Stewart,	Scranton.
Vice-Presidents,	Henry Isaac Jones,	Hyde Park.
	C. H. Fisher,	Scranton.
Secretary,	W. A. Paine,	Hyde Park.
Treasurer,	J. Wilson Gibbs,	"

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Foote, John
Carbondale—
Burnett, John N.
Burr, Charles
Wheeler, Henry C.
Dunmore—
Hopkins, Benj. C.
Green Ridge—
Rea, James L.
Hyde Park—
Allen, Wm. E.
Comegys, Henry C.
Hyde Park—
Evans, Benj. F.
Gibbs, J. W.
Gibbs, Louis H.
Heath, W. H.
Heermans, Eugene A.
Jones, H. I.
Paine, W. A.
Williams, Morgan J.
Jermyn—
Davis, Sumner D.
Moscow—
Frischkorn, Charles

Providence—
Lackey, Harper B.
Scott—
Davison, Francis B.
Scranton—
Boyd, George B.
Connell, Alex. James
Everhart, Isaiah F.
Fisher, C. H.
Gates, Lowell M.
Hand, D. B.
Scranton—
Logan, Harry V.
Reed, Samuel P.
Squire, Ralph Aug.
Stewart, Thos.
Throop, Benj. H.
Throop, Geo. S.
Wehlan, Ludwig
Taylorsville—
Houser, John W.

LANCASTER COUNTY.

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	A. M. Miller,	Bird-in-Hand.
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Corresponding Secretary,	A. J. Herr,	"
Treasurer,	G. R. Welchans,	"

Members.

Akron—
Brubaker, A. S., Uni. Pa., '77.
Annville (Lebanon Co.)—
Trabert, J. W., J. M. C., '70.
Bainbridge—
Bean, G. W., J. M. C., '66.
Weseman, Geo. T., Uni. Gottingen, '47.
Bethesda—
Yost, J. F., J. M. C., '67.
Bird-in-Hand—
Miller, A. M., Penna. M C., '58.
Buck—
Deaver, J. M., Uni. Md., '43.
Christiana—
Plank, E., J. M. C., '70.
Churchton—
Irwin, W. B , J. M. C., '79.
Clay—
Kline, J. Y., Uni. Pa., '74.
Columbia—
Berntheizel, G. W., J. M. C., '66.
Bockius, S. A., Penna. M. C., '61.
Columbia—
Bruner, D. J., Uni. Pa., '30.
Cotterell, J. F. (not registered).
Craig, Alex., J. M. C., '65.
Kay, T. M., College P. & S., Balt., '79.
Markle, C. F.
Lineaweaver, J. K., J. M. C., '61.
McBride, J. B., Uni. Pa., '63.
Righter, W. (not registered).
Conestoga Centre—
Clingler, P. J., Wash. Uni. Balt., '42.
Mowery, J. L., J. M. C., '78.
Earlville—
Horst, M. W., Uni. Pa., '61.
Elizabethtown—
Treichler, A. C., J. M. C., '69.
Ephrata—
Lightner, J. M., Cinci. C. P. & S., '73.
McCaa, D. J., J. M. C., '67.
Farmersville—
Shaeffer, J. F., J. M. C., '79.

Gap—
Parke, A. G. B., Uni. Pa., '66.
Goodville—
Witmer, J. M., J. M. C., '81.
Greene—
Glacken, M., Uni. Md., '59.
Hempfield—
Ringwalt, M.
Hinkletown—
Reimsnyder, B. J., Uni. Pa., '74.
Intercourse—
Smith, W. H., J. M. C., '77.
Kirkwood—
Wentz, T. H., J. M. C., '74.
Lampeter—
Musser, J. H., J. M. C., '66.
Lancaster—
Albright, F. G., Uni. Pa., '51.
Atlee, John L., Sr., Uni. Pa., '20.
Atlee, John L., Jr., Uni. Pa., '53.
Baker, J. F.
Blackwood, Wm., J. M. C., '49.
Bolenius, R. M., Uni. Md., '73.
Carpenter, Henry, Penna. M. C., '41.
Compton, Wm., Phila. M. C., '53.
Davis, S. T., L. I. C. H., '65.
Davis, M. L., Bellevue H. M. C., '70.
Ehler, J. Aug., Penna. M. C., '41.
Foreman, S. B., J. M. C., '76.
Herr, A. J., J. M. C., '61.
Herr, M. L., Uni. Nashville, '66.
Ilyus, E. B.
McCreary, J. H.
Musser, F. M., J. M. C., '70.
Muhlenberg, H. E., Uni. Pa., '71.
Reed, J. A. E.
Roland, O., Uni. Pa., '75.
Shirk, J. M., J. M. C., '79.
Stehman, H. B., J. M. C., '76.
Urban, B. F. W., J. M. C., '69.
Welchans, G. R., Uni. Pa., '67.
Leaman Place—
Leaman, Brainard, J. M. C., '64.
Lincoln—
Charles, Jacob, L. I. M. C., '69.
Litiz—
Brobst, J. C., Bellevue M. C., '67.
Hertz, J. K., Phila. M. C., '60.
Kreiter, J. S., Bellevue H. M. C., '82.
Roebuck, P. J., Uni. Pa., '60.
Shenk, J. H., Uni. Pa., '61.
Little Britain—
Zell, I., Penna. M. C., '56.
Manheim—
Dunlap, J. F., J. M. C., '75.
Marietta—
Alexander, H. M., Uni. Pa., '76.
Mowery, H. A.
Norris, H. E., Uni. Md., '74.
Martinsville—
Bryson, L. M., J. M. C., '79.
Mastersonville—
Thorne, W. B., Uni. Pa., '76.
Thorne, J. S.
Millersville—
Herr, B. F., J. M. C., '77.
Mt. Joy—
Newpher, J. I., Bellevue H. M. C., '81.
Ziegler, J. L., J. C. M., '44.
Ziegler, J. P., Uni. Pa., '80.
Mountville—
Livingston, T. M., Bellevue H. M. C., '72.
New Holland—
Bushong, I., J. M. C., '61.
Kohler, J., Uni. Pa., '73.
New Providence—
Wentz, W. J., J. M. C., '65.
Oregon—
Dillman, A. F., J. M. C., '76.
Paradise—
Hershey, E. R., J. M. C., '80.
Smith, A. H., J. M. C., '78.
Quarryville—
Rhorer, T., J. M. C., '81.

Rohrerstown—
Shenk, D. H., L. I. C. H., '74.
Salunga—
Kendig, B., Uni. N. Y., '74.
Soudersburg—
Davis, J. H., J. M. C., '58.
Strasburg—
Black, H. M., J. M. C., '75
Brackbill, Jos., Uni. Pa., '69.
Keneagy, Samuel, J. M. C., '44.
Musser, B., J. M. C., '46.
Weaver, J. G., J. M. C., '65.
Union Station—
Bleiler, P. O., J. M. C., '76.
Wrightsville (York Co.)—
Thomson, J. A., J. M. C., '52.
Willowstreet—
Mayer, I. H., J. M. C., '69.
Witmer—
Musser, H. E., J. M. C., '75.
Sensenig, J. B., Bellevue H. M. C., '69.

LEHIGH COUNTY.

Officers.

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Corresponding Secretary,	E. G. Martin,	"
Treasurer,	W. S. Berlin,	"

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Lochman, W. J.
Martin, A. J., Uni. Pa., '57.
Martin, E. G., Uni. Pa., '56.
Martin, Thos., Uni. Pa., '77.
Reichard, P. L., J. M. C., '65.
Alburtis—
Beaver, Eugene, J. M. C., '72.
Catasauqua—
Hornbeck, M. E., Uni. N. Y., '65.
Keim, C. J., Uni. Pa., '75.
Quigg, F. W.
Reigle, H.
Centre Valley—
Erdman, F. C.
Coopersburg—
Cooper, T. C.
Copley—
Horn, H., J. M. C., '79.
Stem, P. E.
East Texas—
Miller, A. N.
Egypt—
Kuch, J. A.
Limeport—
King, R. C.
Litzenberg—
Foetherolf, A. P.
Lynnville—
Seiberling, F. C., Uni. N. Y., '62.
Macungie—
Erdman, J. D., Uni. Pa., '72.
Erdman, W. B., Uni. Pa., 60.
Slatington—
Young, P.
Trexlertown—
Herbst, Wm.

LUZERNE COUNTY.

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	B. H. R. Davenport,	Nanticoke.
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Ashley—
- Diefenderfer, E. L., Uni. Pa., '62.
- Louden, A. J., J. M. C., '72.
- Tewksberry, A. D., Uni. Mich., '64.

Belbend—
- Shuman, J. L., J. M. C., '76.

Conyngham—
- Brundage, Franklin, J. M. C., '74.

Dallas—
- Spencer, C. A., Dartmouth, J. M. C., '73.

Huntsville—
- Rogers, J. J., 37 years' practice.

Kingston—
- Corss, Fred., Uni. Pa., '66.
- Rogers, L. L., J. M. C., '81.

Mill Hollow—
- Faulds, W. H.

Muhlenburg—
- Hice, E. C., J. M. C., '79.

Nanticoke—
- Davenport, B. H. R., Savannah M. C., 68.
- Davies, D. H., Uni. Pa., '80.
- Holly, S. L., Miami M. C., '78.

Pittston—
- Hutchins, R. H., Uni. Pa., '81.
- Rice, J. N., Bellevue, '68.
- Troxell, E. R., C. P. & S. N. Y., '75.
- Underwood, G., 37 yrs. practice.
- Walsh, J. J., Uni. Pa., '79.

Plains—
- Barton, A. A., Ky. Sch. of Med., '76.

Plains—
- Brooks, Jas., Chicago M. C., '77.
- Shive, P. C., Penna. M. C., '61.

Plymouth—
- Jones, Jno. Harris, Anderson M. C. Glasgow Uni., '73.

Shickshinny—
- Hughes, M. B., J. M. C., '69.

Upper Lehigh—
- Mays, T. J., J. M. C., '68.

White Haven—
- Trimmer, S. W., Phila. C. of M., '54.

Wilkesbarre—
- Bulkeley, J. E., J. M. C., '46.
- Cressler, John M, " '74.
- Crawford, J. B., 32 yrs. practice.
- Davis, R., Bellevue, '67.
- Davis, R. G., C. P. & S., Balt., '82.
- Guthrie, G. W., Uni. Pa., '73.
- Hakes, Harry, Castleton M. C., '46.
- Harvey, O. F., Univ. Pa., '73.
- Higgins, P. J., Bellevue, '77.
- Howell, J. T., J. M. C., '81.
- Mayer, E. R., Uni. Pa., '44.
- Miner, J. L., " '81.
- Murphy, J. A., " '68.
- Rippard, J. C., C. P. & S. Balt., '81.
- Ross, I. E., Geneva M. C., '67.
- Taylor, L. H., Uni. Pa., '80.
- Weaver, W. G., " '78.

Wyoming—
- Knapp, Chas. P., Bellevue, '77.

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Dwight, M. B.
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Armstrong, R.
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McCormick, H. G.
Saeger, Geo. C.
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Hull, A. P.
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Tomlinson, H. A.
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Hepburn, W. M.
Hill, G. A.
Hull, W. R.
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Lyon, Edw.
Lyon, Thos.
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Matteson, D. E.
Murdoch, F. H.
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Shoemaker, W. P.
Sweet, K. A.

Bradford—
Sweet, N.
Wallace, J. A.
Williams, A. M.
Wilson, Henry.
Custar City—
Shuey, J. H.
Dallas City—
Ford, Sidney E.
Eldred—
Morris, J. E. K.
Gillmer—
Canfield, H. A.
Red Rock—
Egbert, R. A.
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Gumaer, C. H.
Smethport—
McCoy, Henry L.
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Tidd, E. J., Uni. Mich., '70.
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Clark, A. T., Uni. Mich., '61.
Leet, F. H., Cleve. M. C., '58.
Mossman, B. E., W. R. M. C., '64.
Hadley—
Jackson, T. M., Cinci. C. M. & S., '74.
Jackson Center—
McElrath, J. B., J. M. C., '71.
Mercer—
Hope, R. M., Cinci. C., '74.
Hosack, J. P., J. M. C., '49.
Mehard, J. W., J. M. C., '79.
Mehard, S. S., J. M. C., '47.
Pardoe—
Meyer, L. G., J. M. C., '74.
Sandy Lake—
Fulton, T. H., Cleve. M. C., '52.
Geibner, E. X., Harvard Uni. '53.
Sharon—
Bishop, H. M, C. P. & S. N. Y., '69.
Sharon—
Brooks, Phoebe
Griswold, E., J. M. C., '53
Hazen, S. A., Uni. N. Y., '78.
Heilman, S., J. M. C., '71.
Reed, J. H., Miami M. C., '78.
Shilling, ——
Sullivan, Thos., Trinity Uni., Canada, '81.
Sharpsville—
Rhea, A. R., W. R. M. C., '80.
Twitmyre, J. H., Uni. Pa., '82.
Stoneboro—
Cristler, J. H., Rush M. C., '73.
Transfer—
Shutt, J. T., C. P. & S., Balt., '80.
West Middlesex—
Hillier, J. W., Uni. Pa., '60.
Livingston, J. B., W. R. M. C., '56.
Wheatland—
Woods, L. N., Uni. Buffalo, '72.
Worth—
Elliott, Thos., J. M. C., '70.

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Officers.

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- Floyd, J. B., J. M. C., '73.

Lewistown—
- Campbell, R. A., St. Louis M. C.
- Dean, G. G.
- Hurlbut, C. S., Uni. Buffalo.
- Madden, W. S., J. M. C., '76.
- McKim, V. I., Uni. Louisville.
- Parcels, Wm. H., M. C. Ohio.
- Sheaffer, A. H., Uni. Pa., '67.
- Van Valzah, T. H.

McVeytown—
- Brown, Jas. M., J. M. C., '75.

McVeytown—
- Rothrock, A., Uni. Pa., '35.
- Wilson, W. S.

Milroy—
- Harshberger, A., J. M. C.
- Harshberger, A. S., Uni. Pa., '70.
- Woods, Sterrett

Newton Hamilton—
- Mahon, Jos. T., Uni. Md.

Readsville—
- Harman, G. G., J. M. C., '80.
- Rothrock, S. H.

MONTGOMERY COUNTY.

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- Anderson, Jos. W., J. M. C.
- Smith, Samuel S.

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- Mann, Chas. H., J. M. C.

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- Sargent, G. P., L. I. C. H.
- Savery, Wm., Uni. Pa.

Centre Point—
- Meschter, G. K., Uni. Pa.

Centre Square—
- Seiple, S. C., Uni. Pa.

Conshohocken—
- Beaver, D. R., Uni. Pa.
- Highley, G. N., Uni. Pa.
- Reid, J. K., Penna. M. C.
- Stiles, Geo., Uni. Pa.

Evansburg—
- Ulmstead, R., J. M. C.

Harleyville—
- Keeler, C. B., J. M. C.

Hatboro'—
- Evans, I. Newton, J. M. C.

Jeffersonville—
Shrack, Jno., J. M. C.
Jenkintown—
Coltman, ——
Landsdale—
Andrews, R. H., Uni. Pa.
Little Oley (Berks Co.)—
Nieman, H. Y.
Lower Merion—
Arnold, H. A., J. M. C.
Mellerson, A.
Winters, Jos. M., J. M. C.
Mingo—
McKenzie, W. Uni. Pa.
Norristown—
Bennett, Alice, Wom. M. C., Phila.
Bradley, Chas., J. M. C.
Chase, R. H., Uni. Pa.
Corson, Ellwood M., Uni. Pa.
Corson, Wm., Uni. Pa.
Drake, H. H., J. M. C.
Eisenberg, P. Y., Uni. Pa.
Knipe, J. O., J. M. C.
Kugler, Anna, W. M. C., Phila.
Read, L. W., Uni. Pa.
Norristown—
Spear, J. C., Uni. Pa.
Stinson, Mary
Tyson, A. R., Uni. Pa.
Weaver, J. K., J. M. C.
Weber, Chas. Z., J. M. C.
Wiley, S. N., J. M. C.
Whitcomb, H. H., Uni. Pa.
Plymouth Meeting—
Corson, Hiram, Uni. Pa.
Leedom, E. C., Uni. Pa.
Leedom, Oscar, Uni. Pa.
Pottstown—
Davis, Jno., Eclectic M. C., Phila.
Snavely, S. B.
Royer's Ford—
Morey, J., Uni. Pa.
Sharmonville—
Shrawder, J. S , J. M. C.
Skippackville—
Wolfe, Samuel, Uni. Pa.
Tioga (Phila. Co.)—
Keeler, V. Z., J. M. C.
Vanartsdalen, F. V.

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Amerman, Alonzo, Uni. Pa., '75.
Grauel, Geo., N. Y. M. C., '62.
Magill, Wm. H., not registered
Mausteller, J. D., Uni. Pa., '71.
Ogleby, Jas., J. M. C., '68.
Pursell, Isaac, Uni. Pa.
Schultz, S. S., Uni. Pa., '56.
Simington, R. S., Uni. Pa., '54.
Danville—
Strawbridge, Jas. D., Uni. Pa., '47.
Vastine, Jacob, J. M. C , '58.
Riverside (Northumb. Co.)—
Smith, Nelson M., Uni. Pa., '82
Washingtonville—
Hoffa, J. P., J. M. C., '76.
Newbaker, P. C., J. M. C., '69.

NORTHAMPTON COUNTY.

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- Buzzard, John, L. I. C. H., '75.
- Seem, A. A., J. M. C., '65.

Bath—
- Fox, G. T., Uni. N. Y., '65, and Bellevue H. M. C., '75.
- Kern, P. M., J. M. C., '76.
- Seip, W. H., J. M. C., '59.

Belfast—
- Uhler, T. M., J. M. C., '74.

Bethlehem—
- Brenig, P. B., Uni. N. Y. C., '56.
- Lawall, L. H., Uni. Pa., '64.
- Roebuck, J. H., Uni. Pa. '65.
- Stout, Abraham, Uni. Pa., '56.
- Wilson, J. H., Uni. Pa., '60.

Catasauqua (Lehigh Co.)—
- Steinmetz, E. G., L. I. C. H., '67.

Chapmans—
- Berlin, J. O., J. M. C., '74.

Cherryville—
- Engelman, Jos. P., J. M. C., '61.

Danville (Montour Co.)—
- Seip, M. S., Uni. Pa., '76.

Easton—
- Abernethy, H. H., Uni. Pa., '30.
- Apple, S. S., J. M. C., '69.
- Engelman, David, J. C. M., '64.
- Green, Traill, Uni. Pa., '35.
- Hunt, J. S., C. P. & S., N. Y., '65.
- Kotz, A. L., J. M. C., '81.
- Lachenour, H. D., J. M. C., '59.
- Laubach, Stephen, Uni. Pa., '64.

Easton—
- McIntire, Chas., Uni. Pa., '73.
- Michler, H. D., Uni. Pa., '82.
- Moore, J. W., Uni. Pa., '69.
- Ott, Isaac, Uni. Pa., '69.
- Sandt, John, Uni. Pa., '50.
- Sandt, Samuel, Uni. Pa., '44.
- Seip, M. S., Uni. Pa., '76.
- Weaver, H. F., Uni. Pa., '81.

Hecktown—
- Beck, R. H., Uni. Pa., '74.

Hellertown—
- Brown, Alfred, Uni. Pa., '71.

Klecknersville—
- Smock, E. L., J. M. C., '78.

Martin's Creek—
- Seem, A. K., J. M. C., '52.

Nazareth—
- Cope, Thos., J. M. C., '69.

Pen Argyle—
- Cawley, T. F., Bellevue H. M. C., '80.

Petersville—
- Koch, J. G., J. M. C., '65.

Philadelphia (Phila. Co.)—
- Mixsell, Jos., Uni. Pa., '68.

Portland—
- Kline, C. H., J. M. C., '80.

South Bethlehem—
- Estes, W. L., Uni. Va., '77.
- Swoyer, O. D., Uni. Pa., '78.

South Easton—
- Zeiner, L. H., J. M. C., '79.

Weaversville—
- Weaver, S. J., J. M. C., '72.

PERRY COUNTY.

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Benvenue (Dauphin Co.)—
Reuter, Geo. N., Uni. Md., '58.
Duncannon—
Johnson, T. L., Uni. Pa., '68.
McMorris, Noble C., Pa M. C., '59.
Swartz, Joseph, J. M. C., '57.
Ickesburg—
Bryner, N., Uni. N. Y., '81.
Cisna, W. R., Uni. Pa., '65.
Landisburg—
Milliken, D. B., Uni. N. Y., '54.
Sheibly, J. P., Uni. Pa , '68.
Loysville—
De Lancey, C. E., Univ. N. Y., '78.
Hooke, B. P., Uni. Pa., '55.
Liverpool—
Morris, T. G., Pa. M. C., '43.
Thompson, J. F., J. M. C., '64.
Markleville—
Shull, J. D., C. P. and S. Balt., '77.
Marysville—
Boyd, J. M., Ohio M. C., '80.
Eppley, Geo. W., Uni. Phila., '64.
Traver, A. J., Eclectic M. C. Pa., '68.
Millerstown—
Brubaker, J. L , Wash. Uni. Balt., '74.
New Bloomfield—
Strickler, M. B., Uni. Pa., '61.
New Buffalo—
Steele, F. C., Uni. Pa., '79.
Newport—
Eby, Jas. B., Uni. Pa., '66.
Orris, H. O., " '67.
Shermandale—
Sheeder, P. J., Uni. N. Y., '79.

PHILADELPHIA COUNTY.

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Adler, John M., National M. C., '51.
Philadelphia—
Agnew, D. Hayes, Uni. Pa., '38.
Alexander, John J., " '80.
Allen, Harrison, " '61.

Philadelphia—

Allen, J. G., Univ. Pa., '56.
Allis, Oscar H., J M. C., '66.
Anders, J. M., Uni. Pa., '77.
Andrews, Thos. H., J. M. C., '64.
Ash, H. St. Clair, Pa. M. C., '80.
Ashhurst, John, Jr., Uni. Pa., '60.
Ashhurst, Samuel, " '61.
Ashmead, Wm., " '26.
Ashton, S. K., " '43.
Ashton, Wm. E., " '81.
Atkinson, Wm. B., J. M. C., '53.
Atlee, Walter F., Uni. Pa
Atlee, W. L., Jr., J. M. C., '69.
Baer, B. F., Uni. Pa., '76.
Baker, W. H., " '75.
Baldwin, L. K., J. M. C., '62.
Barr, D. M., " '64.
Bartholow, Roberts, Uni. Md., '52.
Barton, Isaac, J. M. C., '77.
Barton, J. M., " '68.
Baxter, H. F., Uni. Pa., '64.
Beates, Henry " '79.
Bell, E. H., J. M. C., '75.
Bell, J. R. F., Uni. Pa., '69.
Benner, H. D., " '55.
Bennett, W. H., " '69.
Bernardy, E. P., " '68.
Bidlack, J. B. W., " '69.
Bissey, H. S., " '80.
Blackwood, W. R. D., Uni. Pa., '62.
Bochroch, M. H., J. M. C., '80.
Boker, C. S., Uni. Pa., '52.
Bourbonville, A. C., J. M. C., '47.
Boyer, A. H., Uni. Pa., '68.
Bradford, T. Hewson, J. M. C., '74.
Brinton, D. G., J. M. C., '60.
Brinton, John H., J. M. C., '52.
Browne, Alex., Uni. Pa., '67.
Bruen, Edw. T., " '73.
Brunet, J. E., J. M. C., '73.
Buck, F. J., " '56.
Buck, W. Penn, " '69.
Buckby, Wilson, " '70.

Philadelphia—

Bunting, R. R., J. M. C., '56.
Burnett, C. H., Uni. Pa., '67.
Burns, Robert Bruce, Uni. Pa., '71.
Burns, W. A., Uni. Pa., '69.
Cadwalader, C. E., " '61.
Caldwell, Alex., J. M. C., '69.
Campbell, J. M., " '78.
Carncross, J. A., " '76.
Carrier, F. A., " '78.
Carroll, Wm., " '63.
Castle, F. D., Uni. Wurtzberg, '76.
Chase, A. F., J. M. C., '74.
Chestnut, J. H. W., Uni. Pa., '71.
Christine, G. M., " '80.
Clark, C. F., J. M. C., '81.
Clark, L. S., Uni. Pa., '67.
Cleemann, R. A., " '62.
Cohen, Morris S., J. M. C., '81.
Cohen, J. Solis, Uni. Pa., '60.
Collins, James, " '60.
Conner, D. N., " '67.
Cooper, J. C., J. M. C., '52.
Crandall, T. V., Coll. P. & S. N. Y., '65.
Crowley, T. S., J. M. C., '49.
Cruice, R. B., Uni. Pa., '59.
Cruice W. R., " '65.
Cummiskey, Jas., J. M. C., '56.
Currie, C. A., Uni. Pa., '80.
Curtin, R. G., " '66.
Curtis, Levi, J. M. C., '47.
Da Costa, J. C., J. M. C., '78.
Darrach, Jas., Uni. Pa., '62.
Davidson, David, " '71.
Deakyne, A. C., Penna. M. C., '53.
Deaver, J. B., Uni. Pa., '78.
Deaver, R. W., " '74.
Dercum, F. X., " '77.
Dixon, W. C., Uni. Va., '60.
Donnelly, J. F., J. M. C., '66.
Drysdale, Thos. M., Penna. M. C., '52.
Duer, E. L., Uni. Pa., '60.
Duhring, L. A., " '67.

Philadelphia—
Dulles, C. W., Univ. Pa., '75.
Dunglison, R. J., J. M. C., '56.
Dunmire, Geo. B., " '68.
Dundore, A. J., " '66.
Dwight, H. E., Uni. Pa., '67.
Engel, Hugo, J. M. C., '78.
Eshleman, Emory, J. M. C., '70.
Eshleman, I. S., " '51.
Eskridge, J. T., " '75.
Evans, Edw. L., Uni. Pa., '70.
Evans, Horace, " '31.
Evans, H. Y., " '58.
Evans, J. R., J. M. C., '51.
Faught, G. G., Uni. Pa., '79.
Feldstein, A., Uni. Prague, '64.
Fenton, Thos. H., Uni. Pa., '77.
Fischer, Emil, J. M. C., '55.
Fleming, Wm. J., Uni. Pa., '51.
Flick, L. F., J. M. C., '79.
Forbes, W. S., " '52.
Formad, H. F., Uni. Pa., '77.
Foulkrod, J. K, " '78.
Fox, C. W., Long Isl. Coll. Hosp., '65.
Franklin, M., J. M. C., '70.
Freund, H. H., " '80.
French, M. S., " '76.
Frick, Wm. S., " '48.
Frické, Albert, Uni. Berlin, '39.
Friebis, Geo., J. M. C., '79.
Garrett, E. F., " '76.
Garretson, Jas. E., Uni. Pa., '59.
Gayley, Jas. F., " '48.
Gerhard, A. S., " '66.
Getchell, F. H., Dartmouth M. C., '60, and J. M. C., '71.
Girvin, Edward R., Uni. Pa., '75.
Girvin, Robt. M., J. M. C., '62.
Githens, W. H. H., Uni. Pa., '66.
Gittings, J. B. H., " '63.
Glasgow, R. B., " '78.
Goodell, Wm., J. M. C., '54, and Uni. Pa., '71.
Graham, Jas., J. M. C., '67.
Graham, John, " '67.
Graydon, A., " '77.
Groff, C. A., " '75.

Philadelphia—
Gross, F. H., J. M. C., '55.
Gross, S. D., " '28.
Gross, S. W., " '57.
Grove, John H., Uni. Pa., '49.
Hall, A. D., J. M. C., '54.
Hall, John C., Uni. Pa., '68.
Hall, L. Brewer, Uni. Pa., '73.
Hamill, R. H., " '78.
Hamilton, George, " '31.
Hamell, B. F., " '63.
Harlan, Geo. C., " '58.
Harlow, L. D., " '48.
Harte, R. H., " '78.
Harvey, H. D., " '78.
Hatfield, Nathan, J. M. C., '65.
Hatfield, N. L., " '26.
Hay, Thomas, Uni. Pa., '61.
Hays, I. Minis, " '68.
Hazel, F. B., " '69.
Hearn, Jos., J. M. C., '67.
Hellyer, Edw., Long Isl. C. H., '64.
Henry, F. P., Uni. Pa., '68.
Hewitt, G. A., J. M. C., '77.
Hewson, Addinell, J. M. C., '50.
Hewson, Addinell, Jr., J. M. C., '79.
Heyl, Albert G., Uni. Pa., '70.
Hickman, N., " '62.
Hine, E. C., Yale Coll., '61.
Hinkle, A. G. B., Uni. Pa., '57.
Hollopeter, W. C., " '77.
Holt, J. F., Uni. Pa., '59.
Hooper, W. H., Uni. Pa., '59.
Hornor, C. W., J. M. C., '49.
Hottenstein, C. D., J. M. C., '48.
Hughes, Donnel, Uni. Pa., '59.
Hughes, Dan. E., J. M. C., '78.
Huidekoper, R. S., Uni. Pa., '77.
Hulshizer, A. H., J. M. C., '78.
Hunt, Wm., Uni. Pa., '49.
Hunter, Chas. T., Uni. Pa., '68.
Hutchinson, Jas. H., Uni. Pa., '58.
Isett, F. S., J. M. C., '76.
Ivison, John, Uni. Pa., '74.

Philadelphia—
Janney, W. S., Penna. M. C., '54, and J. M. C., '80.
Jefferis, E. P., Uni. Pa., '78.
Johnson, Russell H., Uni. Pa., '74.
Judd, L. D., J. M. C., '77.
Jurist, L., " '80.
Keating, J. M., Uni. Pa., '73.
Keating, Wm. V., " '44.
Keen, W. W., J. M. C., '62.
Keir, W. G., Penna. M. C., '56.
Kelly, Jos. V., J. M. C., '68.
Kerr, Geo., Uni. Pa., '64.
Keyser, P. D., Uni. Jena, '64.
Kilduffe, Robert, J. M. C., '80.
Kirkbride, M. F., Uni. Pa., '74.
Kirkbride, Thos. S., Uni. Pa., '32.
Kirkpatrick, M. B., J. M C., '79.
Klapp, Jos., Uni. Pa., '39.
Kline, Wm. O., Uni. Pa., '54.
Knight, S. R., " '69.
Ladd, Horace, J. M. C., '48.
Landesberg, Max, Uni. Berlin, '65.
Lampen, M., Uni. Pa., '60.
Leaman, Henry, J. M. C., '64.
Lee, Benj., N. Y. M. C., '56.
Lee, J. G., J. M. C., '78.
Leffmann, Henry, J. M. C., '69.
Leidy, Jos., Uni. Pa., '44.
Leidy, Philip, Uni. Pa., '59.
Levan, J. R., " '60.
Levis, R. J., J. M. C., '48.
Linn, G. W., Uni. Pa., '72.
Little, W. S., Bellevue M. C., '73, and J. M. C., '77.
Livingston, A. T., Uni. Buffalo, '78.
Loder, P. E., J. M. C., '73.
Loeling, G., " '74.
Longaker, D.
Longstreth, Morris, Uni. Pa., '69.
Lopez, Jos. H., J. M. C., '76.
Love, L. F., J. M. C., '81.
Ludlow, John L., Uni. Pa., '41.
Lyons, Wm., Penna. M. C., '56.

Philadelphia—
MacAvoy, Jno., Penna. M. C., '41.
MacBride, Isaac, Uni. Pa., '54.
Macomber, N. G., " '71.
McAdam, A. H., " '63.
McAlarney, W., J. M. C., '70.
McCall, C. A., Uni. Pa., '58.
McClellan, Geo., J. M. C., '70.
McClelland, R. M., " '79.
McClelland, C., " '73.
McCollin, S. M., " '78.
McCombs, R. S., Uni. Pa., '68.
McCoy, A. W., " '70.
McCracken, G. Y., " '76.
McDowell, S. B., J. M. C., '76.
McElroy, B. F., Uni. Pa., '77.
McFerran, Jas. A., J. M. C., '47.
McIlwaine, C. H., Uni. Pa., '77.
McLean, H. D., J. M. C., '54.
McMurray, A. S., " '42.
McRean, T. A., Phila. C. M., '50.
Martin, J., J. M. C., '78.
Massey, G. B., Uni. Pa., '69.
Mears, J. Ewing, J. M. C., '65.
Meigs, A. V., Uni. Pa., '71.
Miller, C. H., Uni. Marburg, '45, and J. M. C., '50.
Miller, D. J. M., Uni. Pa., '78.
Mills, C. K., Uni. Pa., '69.
Minick, A. K., J. M. C., '70.
Mitchell, S. Weir, J. M. C., '50.
Montgomery, E. E., J. M. C., '74.
Moon, W. P., Phila. M. C., '59.
Morrison, Wm. H., Uni. Pa., '80.
Moss, Wm., J M. C., '55.
Morehouse, Geo. R., J. M. C., '50, and Uni. Pa., '75.
Morris, J. C., Uni. Pa., '54.
Muhlenberg, F., " '67.
Muller, A. F., " '68
Musser, J. H., " '77.
Nancrede, C. B., " '69.
Nagle, F. O., " '80.
Nash, J. D., J. M. C., '65.
Nebinger, Andrew, Uni. Pa., '50.

Philadelphia—

Neff, Jos. S., J. M. C., '75.
Neilson, T. R., Uni. Pa., '80.
Newcomet, H. W., " '65.
Nolan, E. J., " '67.
O'Farrell, G. D., " '62.
O'Hara, Michael, " '52.
Oliver, Chas. A., " '76.
O'Neil, J. J., " '71.
O'Neill, F. X., " '76.
Osler, Owen, J. M. C., '46.
Ott, L., " '78.
Owen, J. J., " '78.
Packard, John H., Uni. Pa., '53.
Pancoast, Wm. H., J. M. C., '56.
Parish, W. H., " '70.
Partenheimer, J. R., Uni. Pa., '72.
Pearson, J. S., Uni. Pa., '76.
Peltz, Josiah, " '67.
Pepper, Wm., " '64.
Perkins, E. S., " '69.
Perkins, F. M., " '76.
Perry, Hext. M., J. M. C., '72.
Phelps, Wm. C., Penna. M. C., '56.
Piersol, G. A., Uni. Pa., '77
Porter, Wm. G., " '68.
Potsdamer, J. B., J. M. C., '79.
Prall, C. R., " '56.
Price, M., Uni. Pa., '69.
Ranck, C. B., " '72.
Randall, B. A., Uni. Pa., '79.
Ransley, A. W., " '75.
Raub, John A., " '62.
Reed, A. G., " '68.
Rex, G. A., " '68.
Rex, O. P., J. M. C., '67.
Rich, T. C., Georgetown Coll., Wash., D C., '69, and J. M. C., '78.
Richardson, E., Uni. Pa., '67.
Richardson, J. G., " '63.
Rickards, Wm. C. L., Uni. Pa., '43.
Risley, S. D., Uni. Pa., '70.
Roberts, A. S., " '77.
Roberts, J. B., J. M. C., '74.

Philadelphia—

Robins, R. P., Uni. Pa., '80.
Rogers, Robt. E., " '36.
Rosenthal, E., J. M. C., '80.
Rudderow, B. J., Uni. Pa., '74.
Sajous, C. E., J. M. C., '78.
Santee, E. I., Uni. Pa., '66.
Schaffer, Chas., " '59.
Scheidt, P. M., " '77.
Schell, H. S., " '57.
Schoales, J. D., " '57.
Schott, Arnold, J. M. C., '68.
Seiler, Carl, Uni. Pa., '72.
Seltzer, C. M., " '78.
Seyfert, T. H., " '67.
Shakespeare, E. O., Uni. Pa., '69.
Shapleigh, E. B., " '49.
Shattuck, G. F., Med. Dep. Harv. Uni., '62.
Shelley, A. F., J. M. C., '60.
Sheppard, F. C., Uni. Pa., '79.
Shimwell, B. T., J. M. C., '75.
Shoemaker, J. V., " '74.
Simes, J. H. C., Uni. Pa., '70.
Simon, T. W., J. M. C., '77.
Simsohn, J. S., " '74.
Sinkler, W., Uni. Pa., '68.
Skillern, P. G., " '77.
Skillern, S. R., " '54.
Skilling, M. J., J. M. C., '73.
Slocum, H. A., Uni. Pa., '79.
Smaltz, J. H., " '50.
Smith, Albert H., " '56.
Smith, H. A., " '75.
Smith, Henry H., " '37.
Stein, L. K., " '60.
Steinbach, L. W., J. M. C., '80.
Stelwagen, H. W., Uni. Pa., '79.
Stewart, D. D., J. M. C., '79.
Stewart, F. E., " '79.
Stewart, Wm. S., " '63.
Stillé, Alfred, Uni. Pa., '36.
Stocker, A. E., " '40.
Stone, Edw. R., J. M. C., '72.
Stone, Jas. F., Bellevue M. C., '66.
Strawbridge, Geo., Uni. Pa., '65.
Stritmatter, A. P., J. M. C., '80.

Philadelphia—
Stubbs, Geo. E., Med. Dep. Harv. Uni., '63.
Styer, Chas., Uni. Pa., '62.
Taylor, J. H., " '52.
Taylor, J. M., " '78.
Taylor, Wm. Terry, Uni. Pa., '48.
Thomas, Chas. H., Uni. Pa., '65.
Thomson, Wm., J. M. C., '55.
Toboldt, A. L. A., Uni Pa., '73.
Trautmann, B., Georgetown Uni., D. C., '74.
Treacy, D. J., J. M. C., '67.
Troth, S. N., " '49.
Turnbull, Chas. S., Uni. Pa., '71.
Turnbull, Laurence, J. M. C., '45.
Tyson, James, Uni. Pa., '63.
Vanderslice, E. S., " '64.
Vandyke, E. B., " '56.
Van Harlingen, A., " '67.
Van Valzah, W. W., J. M. C., '76.
Vinton, C. H., Uni. Pa., '68.
Vogler, Geo. W., " '76.
Walk, Jas. W., " '78.
Walker, Jas. B., " '72.
Wallace, E., J. M. C., '43.
Watson, E. W., Uni. Pa., '75.
Waugh, W. F., J. M. C., '71.
Webb, W. H., " '66.
Weber, Louis, Uni. N. Y., '80.
Wehner, J. H., Penna. M. C., '61.
Weir, F. LeS., J. M. C., '76.

Philadelphia—
Welch, W. M., Uni. Pa., '59.
Wells, Jas. Ralston, J. M. C., '54.
Wevill, R. Henry, J. M. C., '53.
Wharton, H. R., Uni. Pa., 76.
Wharton, R. S., J. M. C., '76.
Wheeler, E. B., Bellevue M. C., '73.
Whelen, Alfred, Uni. Pa., '74.
White, J. W., " '73.
Whiteside, J. E., Penna. M. C., '74.
Wiley, Eugene, J. M. C., '69.
Willard, De Forrest, Uni. Pa., '67.
Williams, Horace, Uni. Pa., '65.
Willitts, Chas. H., " '79.
Wilson, Benj. B., " '50.
Wilson, Ellwood, J. M. C., '45.
Wilson, H. A., " '79.
Wilson, Jas. C., " '69.
Wilson, Jas. F., Uni. Pa., '64.
Wirgman, Chas., J. M. C., '77.
Wittig, Chas. F., Uni. Gottingen, '33.
Wolford, W. S., J. M. C., '73.
Wood, H. C., Uni. Pa., '62.
Woodbury, F., J. M. C., '73.
Woods, D. F., Uni. Pa., '64.
Yard, John L., J. M. C., '79.
Yarrow, Thos. J., Uni. Pa., '61.
Zeigler, Geo. J., " '50.
Zeigler, Walter M. L., " '74.

SCHUYLKILL COUNTY.

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Marshall, D. S.

Ashland—
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Owens, W. R.

Auburn—
Quail, C. E.
Berwick—
Reagan, G. L.
Buck Mountain (Carbon Co.)—
Prevost, L. M.
Cornwall (Lebanon Co.)—
Glein, Geo., Jr.
Cressona—
Dechert, D.
Frackville—
Taggart, D.
Girardville—
Sherman, A. B.
Lost Creek—
Brady, S. H.
Mahanoy City—
Brendle, G. F.
Davis, B. H.
Hermany, P.
Lewis, Thos.
Ramsey, R. N.
Thompson, L. M.
Middleport—
Bankes, W. C.
Minersville—
Guldin, B. C.
McCrystal, Jno.
Mt. Carmel (Northumberland Co.)—
Montelius, R. W.
Samuels, Edw.
Orwigsburg—
Binckley, G. K.
Port Carbon—
Birch, T. J.
Brown, G. W.
Pottsville—
Bland, D. W.
Carpenter, J. T.
Chrisman, R. S.
Halberstadt, A. H.
Halberstadt, Geo. H.
Palmer, C. T.
Smith, W. C. J.
Swayze, Mary Alice.
Swaving, J. G. C.
Weaver, R. T.
Ringtown—
Rentschler, H. D.
Schuylkill Haven—
Amick, J. B.
Lenker, C.
Piper, O. P.
Wiltrout, J. D.
Shamokin (Northumberland Co.)—
Robins, O. M.
Shenandoah—
Biddle, J. C.
Callan, J. S.
Langton, D. J.
Spaulding, S. C.
St. Clair—
Carr, A. P.
Halbauer, T. K.
Tower City—
Phillips, E. F.
Williamsport (Lycoming Co.)—
Koser, S. S.

SNYDER COUNTY.

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	J. O. Wagner,	Beaver Springs.
Secretary and Treasurer,	John Y. Shindel,	Middleburg.

Members.

Bannerville—
Swigart, I. R., Cinci. C. M. & S., '77.
Beaver Springs—
Smith, A. M., J. M. C., '70.
Wagner, Jno. O., C. P. & S., Balt. '80.

Beavertown—
Bordner, H. H., Ann Arbor Uni., '74.
Strohecker, J. T., J. M. C., '77.
Freeburg—
Nipple, H. M., J. M. C., '71.
Tool, E. W., C. P. & S. Balt., '80.
Kratzerville—
Hermann, Perc., Cinci. C. M. & S., '76.
Mt. Pleasant Mills—
Rothrock, M., C. P. & S., Balt., '81.
Middleburg—
Rothrock, Roswell, J. M. C., '51.
Shindel, Jno. Y., Penna. M. C., '55.
Penn's Creek—
Kanawell, J. F., Uni. Pa., '79.
Selins Grove—
Wagonseller, B. F., Penna. M. C., '60.

SUSQUEHANNA COUNTY.

Officers.

President,	A. T. Brundage,	Factoryville.
Vice-President,	E. N. Smith,	Susquehanna.
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Treasurer,	W. R. Blakeslee,	Hartford.

Members.

Auburn Centre—
Harrison, G. M., Mich. Uni., '75.
Brackney—
Tiffany, C. W., N. Y. Uni., '81.
Brooklyn—
Ainey, A. J., Yale, '67.
Chamberlin, A. (not a graduate).
Clifford—
Gardner, E. R., J. M. C., '82.
Gardner, P. H., 40 years' practice.
Factoryville—
Brundage, A. T., Castleton M. C., '45.
Brundage, Geo. A., Mich. Uni., '76.
Gibson—
Rogers, Wm., Mich. Uni., '69.
Great Bend Borough—
Hines, E. P., J. M. C., '74.
Wilmot, E. F., Phila. M. C., '54.
Great Bend Village—
Lamb, F. D., Uni. Buffalo, '75.
Harford—
Blakeslee, W. R., N. Y. Uni., '65.
Galbraith, W. S., Cinci. C. M. & S., '80.
Pennepacker, H., Uni. Pa., '66.
Hopbottom—
Schoonmaker, P., Mich. Uni., '80.
Jackson—
Engle, S. J., Albany M. C., '79.
Kirkwood (N. Y.)—
Beebe, W. S., Mich. Uni., '67.
Montrose—
Gardner, F. L., Yale, '61.
Halsey, C. C., Castleton M. C., '50.
Richardson, W. L., J. M. C., '48.
Strange, W. W., J. M. C., '81.
New Milford—
Ainey, D. C., Yale, '60.
Smith, L. A., 42 years' practice.
Susquehanna Depot—
Birdsall, S., Bellevue H. M. C., '65.
Filewood, F. (not a graduate).
Smith, E. N. " "
Tingley, E. A., Uni. Buffalo, '48.
Thompson—
Stimpson, A. O., McGill Uni., Canada, '68.
Uniondale—
Fletcher, W. W.

TIOGA COUNTY.

Officers.

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Treasurer,	H. H. Borden,	Tioga.

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- Drake, E. G., L. I. C. H., '74.

Arnot—
- Waters, D. C., Georgetown M. C.

Blossburg—
- Crandel, Geo. D.
- Ingram, Nelson, Bellevue H. M. C., '65.
- Jennings, Wm. H., Rush M. C. Chicago, '77.

Cherry Flats—
- Martin, H. G., many years' practice.

Covington—
- Robins, E. S., many years' practice.

Gaines—
- Ritter, F. D., Buffalo Uni., '61.

Knoxville—
- Francis, W. R.

Lawrenceville—
- Darling, Lewis, Jr., Ann Arbor Uni., '66.
- Granger, Locke, Geneva M. C., '45.

Mainesburg—
- Maine, Geo. D., Uni. Buffalo, '65.

Mansfield—
- Elliott, C. V., many years' practice.
- Moody, Benj., J. M. C., '69.
- Vedder, W. D., C. P. & S. Balt., '80.

Nelson—
- Lincoln, S. W., C. P. and S., Balt., '79.
- Loop, A. M., many years' practice.

Osceola—
- Heggie, A. J., many years' practice.
- Humphrey, W. G., C. P. and S. Balt., '80.
- Humphrey, W. T., many years' practice.

Tioga—
- Borden, C. B., N. Y. C. M., '77.
- Borden, H. H., many years' practice.
- Fisk, Ansel J., Detroit M. C., '76.
- Smith, Robt. B., L. I. C. H., '66.

Wellsboro'—
- Bacon, Daniel, Uni. Buffalo, '60.
- Bacon, M. L., L. I. C. H., '73.
- Baldwin, Mary E., Woman's M. C. N. Y., '74.
- Packer, N., many years' practice.
- Thompson, C. K., Geneva M. C., '47.
- Webb, W. W., Castleton M. C., '54.

Westfield—
- Bottom, A. L., Detroit M. C., '75.
- Mastens, Jas., many years' practice.

Woodhull—
- Seeley, A. H.

VENANGO COUNTY.

Officers.

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	B. F. Hamilton,	Emlenton.
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Assist. Recording Secretary,	W. L. Whann,	"
Corresponding Secretary,	G. W. Dille,	Cooperstown.
Treasurer,	T. W. Egbert,	Oil City.

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- Hoffman, K. M., Uni. of Hudson, '70.
- Parr, G. W., Bellevue, '72.

Cooperstown—
- Crawford, J. K., Uni. Pa., '68.
- Crawford, Robt., " '60.
- Dille, G. W., Cleveland M. C., '72.
- Dille, J. M., Uni. Willoughby, Ohio.

Emlentown—
- Hamilton, B. F., Charity H. M. C., Ohio, '67.

Franklin—
- Moore, E. W., Charity H. M. C., '69.
- Snowden, S. G., Phila. M. C.,'59.
- Welsh, W. S., Cleveland M. C., '52.
- Whann, W. L., Starling M. C., '57, and J. M. C., '68.

Oil City—
- Coope, A. F., Uni. Mich., '70.
- Davis, F. F., " '67.
- Egbert, T. W., M. C. Ohio, Cinci., '63.
- McCullough, T. C., J. M. C., '53.
- Ritchey, J. A., J. M. C., '71.

Pleasantville—
- Blaine, J. E., Bellevue, '72.

Tionesta (Forrest Co.)—
- Morrow, J. W.

WARREN COUNTY.

Officers.

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	W. M. Baker,	"
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Treasurer,	John Curwen,	Warren.

Members.

Chandler's Valley—
- Whitcomb, F., Uni. Buffalo, '82.

Kane (McKean Co.)—
- Preston, Geo. H.

Kenzua—
- Knapp, J. J., C. P. & S. Balt, '81.

Landers—
Cowles, H. H., Uni. N. Y., '77.
Lottsville—
Whitney, W. D., Uni. Buffalo, '74.
North Warren—
Cowden, E. J., Uni. Buffalo, '82.
Sheffield—
McNitt, G. F., C. P. & S., Balt., '79.
Sugar Grove—
Burroughs, J. L., Uni. Vermont, '61.
Seabury, W. W., Uni. Wooster, O., '75.
Tidioute—
Shugart, F. A., 40 years' practice.
Warren—
Baker, Willis M., Uni. Buffalo, '78.
Bartholomew, H. L., Dart. Med. Dept., '63.
Curwen, John, Uni. Pa., '44.
Guth, M. S., Uni. Pa., '76.
Hazeltine, Wm. V., 17 years' practice.
Stewart, Reverdy B., Uni. Md., '65.
Stewart, Richard B., M. & S. C., Balt., '81.
Stranahan, D. V., Uni. Buffalo, '72.
Wilcox (McKean Co.)—
Straight, A. M.
Youngsville—
Blodget, A. C.
Crawford, S. M., Uni. Pa., '78.

WASHINGTON COUNTY.

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Secretary,	John A. McKean,	Washington.
Treasurer,	W. R. Thompson,	"

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Beallsville—
Tambaugh, L. H., Cleveland M. C., '77.
Beantleysville—
Scott, J. Y., Uni. Pa., '75.
Buffaloville—
Snodgrass, H. L., Uni. Mich., '76.
Burgettstown—
Bradley, T. W., Starling M. C., '57.
Canonsburg—
Alexander, J. W., 41 years' practice.
Donaldson, J. B., Cleveland M. C., '72.
Claysville—
Sprouls, I. N., J. M. C., '77.
Dunningsville—
Emory, B. A., J. M. C., '78.
Emory, B., Uni. Pa., '57.
East Bethlehem—
Farquhar, Q. C., Uni. Pa., '77.
Eldersville—
McCarrel, J. F., 18 years' practice.
Hickory—
McCarrel, D., 25 years' practice.
McElroy, J., Uni. Worcester, '71.
Monongahela City—
Linn, G. A., J. M. C., '69.
Lytle, G. E., J. M. C., '77.
Morrison, M. P., J. M. C., '51.
Scott, F. P., Uni. Louisville, '71.

Monongahela City—
Sloan, J. G., Georgetown M. C., '69.
Wood, C. B., Uni. Pa., '76.
Sparta—
Blachley, O. L., J. M. C., '77.
Blachley, S. L., J. M. C., '70.
Taylorstown—
Crawford, J. S., Cleveland M. C., '61.
Vanceville—
McDonough, H. H., Cleveland M. C., '76.
Venice—
Griffith, G. R.
Washington—
McElree, A. S., Uni. Pa., '66.
McKean, J. A., Uni. Pa., '70.
McKennan, Thos., Uni. Pa., '46.
McKennan, H. S., Uni. Pa., '74.
Thompson, W. R., J. M. C., '67.
West Alexander—
Brownlee, J. C., Bellevue H. M. C., '70.
Eagleson, D. S., J. M. C., '63.
Zollarsville—
Patterson, J. A., Ohio M. C., '75.

WESTMORELAND COUNTY.

Officers.

President,	J. Q. Robinson,	West Newtown.
Vice-Presidents,	Jas. I. Marchand,	Irwin Station.
	W. J. Rugh,	Manor Dale.
Recording Secretary,	D. Emmett Welsh,	Latrobe.
Treasurer,	D. W. McConaughy,	"

Members.

Adamsburg—
Miller, D. W., W. R. M. C., '81.
Bridgeport—
Howell, O. W., W. R. M. C., '80.
Burrell—
Moore, John R., J. M. C., '54.
Delmont—
Fulton, Jas., 10 years' practice.
Derry Station—
Cline, Jas. C., J. M. C., '80.
Klingensmith, I. P., J. M. C., '76.
Derrytown—
Cosgrove, W. B., Uni. Balt., '80.
Greensburg—
Anawalt, J. W., J. M. C., '55.
Cowan, Frank, Nat. M. C., '66.
Crawford, Jas. L., J. M. C., '68.
Hammer, R. B., Uni. Pa., '81.
Kamerer, J. W. B., J. M. C., '71.
Irwin Station—
Humphreys, G. L., J. M. C., '74.
Kifer, L. M., J. M. C., '78.
Marchand, Jas. I., J. M. C., '62.
Latrobe—
McConaughy, D. W., J. M. C., '58.
Welsh, D. Emmett, J. M. C., '78
Ligonier—
McGowan, D. W., Uni. Pa., '51.
Madison—
Milligan, J. D., J. M. C., '76.
Manor Dale—
Rugh, W. J., Columbus M. C., '77.
Mount Pleasant—
Clark, J. H., 10 years' practice.
McConaughy, J., J. M. C., '45.
McConaughy, Robert, J. M. C., '75.
Marsh, F. L., J. M. C., '68.

Mount Pleasant—
Wakefield, J. B , 10 years' practice.
New Alexander—
Cook, J. L., J. M. C., '58.
Oakland X Roads—
Ewing, J. R., Cinci. C. M. & S., '70.
Painterville—
Berkey, N. G., J. M. C., '78.
Penn Station—
Offut, Lemuel, Uni. Balt., '76.
Pleasant Unity—
Brown, Logan, 10 years' practice.
Smith, L. T., J. M. C., '76.
Scottdale—
Eisaman, C. D. B., J. M. C., '71.
Shaner—
Daggett, A. S., C. M. C., '81.
Stonerville—
Rigg, J. E., C. P. & S. Balt., '79.
Suterville—
McNune, J. N., W. R. M. C., '78.
West Newtown—
Patton, F. H., J. M. C., '66.
Richie, J. H., W. R. M. C., '67.
Robinson, J. Q., Uni. N. Y., '49.
Van Kirk, B. H., J. M. C., '69.
Youngstown—
Bowman, R. R., J. M. C., '78.
Peebles, A. H., Cinci. C. P. & S., '76.

YORK COUNTY.

Officers.

President,	G. P. Yost,	Loganville.
Vice-Presidents,	H. Alleman,	Hanover.
	J. Deisinger,	Hellam.
Secretary,	Samuel J. Rouse,	York.
Treasurer,	M. J. McKinnon,	"

Members.

Dallastown—
Grove, A. P. T., C. P. & S. Balt., '78.
Davidsburg—
Melsheimer, E. L., Penna. M. C., '50.
Delta—
Hickman, J. W., J. M. C., '79.
Dillsburg—
Bailey, W. D., Uni. Pa., '62.
Glenville—
Overmiller, C. F.
Stick, W. C., Wash. Uni. Balt. '74.
Hanover—
Allemon, Horace, M. C. Pa., '74.
Bittinger, J. H.
Snively, A. J., Bellevue H. M. C., '66.
Weaver, G. P., Uni. Pa., '67.
Hellam—
Armstrong, J. A., Uni. Pa., '71.
Deisinger, Jonas, Uni. Pa., '67.
Loganville—
Miller, J. S.
Yost, Geo. P., Wash. Uni. Balt., '71.
Manchester—
Kain, J. B., J. M. C., '71.
Red Lion—
Hyson, J. M., C. P. & S. Balt., '75.
Seven Valleys—
Gladfelter, J. A.
Slate Hill—
McCurdy, W. H., J. M. C., '81.
Spring Grove—
Bahn, Geo. W.
Hoke, Martin

Winterstown—
Hilderbrand, C. G., C. P. & S. Balt., '81.

York—
Bacon, W. H.
Blair, A. R., J. M. C., '53.
Frey, Levi, Uni. N. Y., '50.
Gable, Isaac C., Uni. Pa., '77.
Hart, Jacob, Uni. Pa., '68.
Hay, Jacob, Uni. Md., '55.
Holahan, J. F., Uni. Pa., '67.
Kerr, J. W., Uni. Pa., '39.
Lochman, L. M., Penna. M. C., '82.
Long, Alfred A., Uni. Pa., '77.
McClure, J. W., Uni. Md., '66.

York—
McKinnon, M. J., Uni. Pa.
Meisenhelder, E. W., J. M. C., '67.
Myers, Z. C.
Perkins, J. T., Uni. Md., '77.
Rebman, G. A., Uni. Md., '76.
Rouse, Samuel J., Penna. M. C., '51.
Rowland, Wm. S., Uni. Pa., '35.
Spangler, B. F., J. M. C., '68.
Spangler, J. R., " '74.
Spangler, C. F., " '81.
Wagner, W. H., " '81.
Wiest, John, Uni. Mich., '76.

ALPHABETICAL LIST

OF

MEMBERS OF COUNTY SOCIETIES.

A County placed in parentheses ( ) indicates the Society of which the person is a member.

Abbot, G. E., Philadelphia.
Abernethy, H. H., Easton, Northampton.
Adler, John M., Philadelphia.
Agnew, D. Hayes, Philadelphia.
Ainey, A. J., Brooklyn, Susquehanna.
Ainey, D. C., New Milford, Susquehanna.
Ainsley, W. B., Saltsburg, Indiana.
Ake, Joseph H., Williamsburg, Blair.
Albright, F. G., Lancaster, Lancaster.
Alexander, H. M., Marietta, Lancaster.
Alexander, J. F., Centre Hall, Centre.
Alexander, John J., Philadelphia.
Alexander, J. W., Canonsburg, Wash.
Alexander, W. B., Reynoldsville, Jefferson.
Allemon, Horace, Hanover, York.
Allen, C. L., Beaver Meadow, Carbon.
Allen, E. P., Athens, Bradford.
Allen, Harrison, Philadelphia.
Allen, John M., Chester, Delaware.
Allen, Joshua G., Philadelphia.
Allen, Thomas L., Langhorne, Bucks.
Allen, Wm. E., Hyde Park, Lackawana.
Allis, O. H., Philadelphia.
Allison, T. H., Kittanning, Armstrong.
Allison, T. M., Kittanning, Armstrong.
Allport, H., Philipsburg, Clearfield.
Alter, M. H., Kittanning, Armstrong.
Amberson, J. B., Waynesboro, Franklin.
Amick, J. H. B., Schuylkill Haven, Schuylkill.
Ammerman, Alonzo, Danville, Montour.
Ammerman, C. W., Orangeville, Columbia.
Anawalt, James W., Greensburg, Westmoreland.
Anders, J. M., Philadelphia.
Anderson, Joseph W., Ardmore, Montgomery.
Anderson, M. E , Sayre, Bradford.
Anderson, Wm., Indiana, Indiana.
Andrews, R. H., Lansdale, Montg'y.
Andrews, Thomas H., Philadelphia.
Ansley, Wm. B., Saltsburg (Armstrong), Indiana.
Apple, S. S., Easton, Northampton.
Armsbury, J. A., Tewksbury, Armstrong,
Armstrong, J. A., Hellam, York.
Armstrong, R., Lock Haven, Centre (Lycoming).
Arnholt, M. A., Pittsburg, Allegheny.
Arnold, H. A., Lower Merion, Montg'y.
Arnold, J. F., Williamsburg, Blair.
Asdale, W. J., Pittsburg, Allegheny.
Ash, H. St. Clair, Philadelphia.
Ashhurst, John, Philadelphia.
Ashhurst, Samuel, Philadelphia.
Ashmead, Wm., Germantown, Phila.
Ashton, S. K., Germantown, Phila.
Ashton, W. E., Philadelphia.
Atkinson, Wm. B., Philadelphia.
Atlee, John L., Lancaster, Lancaster.
Atlee, John L., Jr., Lancaster, Lancaster.
Atlee, W. Lemuel, Philadelphia.
Atlee, Walter F., Philadelphia.
Ayres, Samuel, Pittsburg, Allegheny.

Bachman, C. H., Reading, Berks.
Bacon, Daniel, Wellsboro', Tioga.
Bacon, M. L., Wellsboro', Tioga.
Bacon, W. H., York, York.
Baer, B. F , Philadelphia.
Bahn, G. W., Spring Grove, York.
Bailey, Wm. D., Dillsburg, York.
Baker, Frances N., Media, Delaware.
Baker, J. F., Lancaster, Lancaster.
Baker, W. A., Hydetown, Crawford.
Baker, W. H., Philadelphia.
Baker, Willis M., Warren, Warren.
Baldwin, L. K., Philadelphia.
Baldwin, Mary E., Wellsboro', Tioga.
Balmer, A. F., Brookville, Jefferson.
Bankes, W. C., Middleport, Schuylkill.
Barber, J. H., Strattonville, Clarion.

Bardwell, E. O., Emporium, Cameron (Elk).
Barnett, W. A., Summer Hill, Cambria.
Barr, David M., Philadelphia.
Barr, G. W., Titusville, Crawford.
Bartelson, H. C., Fernwood, Delaware.
Bartelson, S. P., Clifton Heights, Del.
Barton, A. A., Plains, Luzerne.
Barton, Isaac, Philadelphia.
Barton, J. M., Philadelphia.
Bartholow, Roberts, Philadelphia.
Bartholow, H. L., Warren, Warren.
Batten, John M., Pittsburg, Allegheny.
Baxter, C. S., Nesquehoning, Carbon.
Baxter, H. F., Philadelphia.
Bean, G. W., Bainbridge, Lancaster.
Beane, W. H., Middletown, Dauphin.
Beates, Henry, Philadelphia.
Beaver, A. P., Millerstown, Adams.
Beaver, D. R., Conshohocken, Montg'y.
Beaver, Eugene, Alburtis, Lehigh.
Beck, J. N., Sligo, Clarion.
Beck, R. H., Hecktown, Northampton.
Becker, John, Reading, Berks.
Beebe, W. S., Kirkwood, N. Y. (Susquehanna).
Belcher, C. E., English Centre, Lycom'g.
Bell, E. H., Philadelphia.
Bell, J. R. F., Philadelphia.
Bell, S. D., Barnhart's Mill, Butler.
Bennenghoff, G. E., Tarport, McKean.
Benner, Henry D., Philadelphia.
Bennett, Alice, Norristown, Montg'y.
Bennett, Wm. H., Philadelphia.
Berlin, Jas. O., Chapmans, Northamp.
Berlin, W. S., Allentown, Lehigh.
Bernardy, E. P., Philadelphia.
Berntheizel, G. W., Columbia, Lancaster.
Best, David, Meadville, Crawford.
Beyer, W. F., Punxatawney, Jefferson.
Bickle, Geo. H., Rehrersburg, Berks.
Biddle, J. C., Shenandoah, Schuylkill.
Bidlack, J. B. W., Philadelphia.
Bigham, James, Allegheny, Allegheny.
Binckley, G. K., Orwigsburg, Schuyl.
Birch, T. J., Port Carbon, Schuylkill.
Birdsall, S., Susquehanna Depot, Susquehanna.
Bischoff, H. W., Halifax, Dauphin.
Bishop, H. M., Sharon, Mercer.
Bishop, W. T., Harrisburg, Dauphin.
Bissey, H. S., Philadelphia.
Bittinger, J. H., Hanover, York.
Bixler, J. R., Carlisle, Cumberland.
Blachley, O. L., Sparta, Washington.
Blachley, S. L., Sparta, Washington.
Black, H. M., Strasburg, Lancaster.
Black, M. F., Newry, Blair.
Blackwood, Wm., Lancaster, Lancaster.
Blackwood, W. R. D., Philadelphia.
Blaine, J. E., Pleasantville, Venango.
Blair, Alex. R., York, York.
Blair, J. M., Fleming, Centre.
Blaisdell, I. C., Wilmore, Cambria.
Blakeslee, W. R., Harford, Susquehanna.
Bland, D. W., Pottsville, Schuylkill.
Blandy, T. R., Osceola, Clearfield.
Bleiler, P. O., Union Station, Lancaster.
Blodgett, A. C., Youngsville, Warren.
Bloom, F. G., Martinsburg, Blair.
Bloom, H. C., Martinsburg, Blair.
Blose, J. U., Grant, Indiana.
Blumberg, A., Pittsburg, Allegheny.
Boal, G. Y., Baden, Beaver.
Bochroch, Max, Philadelphia.
Bockius, S. A., Columbia, Lancaster.
Boker, Charles S., Philadelphia.
Bolenius, R. M., Lancaster, Lancaster.
Bonebreak, D. W., Martinsburg, Blair.
Bonsteel, A. S., Corry, Erie.
Borden, C. B., Tioga, Tioga.
Borden, H. H., Tioga, Tioga.
Bordner, H. H., Beavertown, Snyder.
Bottum, A. L., Westfield, Tioga.
Bournonville, Aug. C., Philadelphia.
Bowman, Jacob, East Mauch Chunk, Carbon.
Bowman, J. D., Harrisburg, Dauphin.
Bowman, John F., Millersburg, Daup'n.
Bowman, J. W., Camp Hill, Cumb'd.
Bowman, R. R., Kittanning, Armstrong.
Boyd, Geo. B., Scranton, Lackawanna.
Boyd, J. M., Marysville, Perry.
Boyer, A. H., Philadelphia.
Boyer, J. H., Shepherdstown, Cumb.
Boyles, R. M., Reynoldsville, Jefferson.
Brackbill, Jos., Strasburg, Lancaster.
Bradford, T. Hewson, Philadelphia
Bradley, Chas., Norristown, Montg'my.
Bradley, T. W., Burgettstown, Wash.
Brady, S H., Lost Creek, Schuylkill.
Brandes, Charles, Erie, Erie.
Brandt, E. B., Mechanicsburg, Cumber'd.
Brallier, E., Chambersburg, Franklin.
Bredin, Stephen, Butler, Butler.
Brehm, S. H., Newville, Cumberland.
Breinig, P. B., Bethlehem, Northamp.
Brendle, Geo. F., Mahanoy City, Schuyl.
Brewster, A. D , Pittsburg, Allegheny.
Brinton, Daniel G., Philadelphia.
Brinton, John H., Philadelphia.
Brinton, W. M., Sharpsburg, Allegheny.
Brobst, Edward, Leesport, Berks.
Brobst, J. C., Litiz, Lancaster.
Brobst, John A., Bernsville, Berks.
Brooke, J. B., Reading, Berks
Brooks, F. V., Breakneck, Butler.
Brooks, Jas., Plains, Luzerne.
Brooks, Phœbe, Sharon, Mercer.
Brown, Alfred, Hellertown, Northamp.
Brown, Geo. W., Port Carbon, Schuyl.
Brown, J. M., Mines, Altoona.
Brown, Jas. M., McVeytown, Mifflin.
Brown, Jean S. S., Williamsport, Lycom.
Brown, R. B., Summerville, Jefferson.
Browne, Alex., Philadelphia.

Brownlee, J. C., West Alexander, Wash.
Brubaker, A. P., Philadelphia.
Brubaker, A. S., Ackron, Lancaster.
Brubaker, J. L., Millerstown, Perry.
Bruckhart, W. S., Shoremanstown, Cumb.
Bruen, E. T., Philadelphia.
Brumbaugh, A. B., Huntingdon, Huntingdon.
Brundage, A. T., Factoryville, Wyoming (Susquehanna).
Brundage, F., Conyngham, Luzerne.
Brundage, G. A., Factoryville, Wyoming (Susquehanna).
Bruner, Daniel J., Columbia, Lancaster.
Brunet, J. E., Philadelphia.
Bryner, N., Ickesburg, Perry.
Bryson, L. M., Martinsville, Lancaster.
Buchanan, J. G., Allegheny, Allegheny.
Buck, F. J., Philadelphia.
Buck, Wm. Penn, Philadelphia.
Buckby, Wilson, Philadelphia.
Bulkeley, J. E., Wilkesbarre, Luzerne.
Bullock, L. M., Upland, Delaware.
Bunting, R. R., Philadelphia.
Burchfield, J. P., Clearfield, Clearfield.
Burket, G. W., Tyrone, Blair.
Burnett, Chas. H., Philadelphia.
Burnett, John N., Carbondale, Lack'a.
Burns, R. Bruce, Frankford, Phila.
Burns, W. A., Philadelphia.
Burr, Chas., Carbondale, Lackawanna.
Burrell, J. L. A., Williamsport, Lyc'g.
Burroughs, J. L., Sugar Grove, Warren.
Buss, C. D., Bradford, McKean.
Bushong, Israel, New Holland, Lanc'r.
Buttermore, Smith, Connellsville, Fay'te.
Buzzard, John, Bangor, Northampton.
Byerle, Geo. W., Bernville, Berks.
Byers, J. E., Butler, Butler.

Cadwalader, C. E., Philadelphia.
Caldwell, Alex., Philadelphia.
Calhoun, F. C., Dayton, Armstrong.
Callan, J. S., Shenandoah, Schuylkill.
Calvin, D. M., Meadville, Crawford.
Cameron, Norris, Penn Run, Indiana.
Campbell, E. B., Williamsport, Lycom'g.
Campbell, J. M., Philadelphia.
Campbell, R. A., Lewistown, Mifflin.
Canfield, H. A., Gillmer, McKean.
Carey, R. B., Glenloch, Chester.
Carncross, J. A., Philadelphia.
Carpenter, Henry, Lancaster, Lancaster.
Carpenter, John T., Pottsville, Schuyl.
Carr, A. P., St. Clair, Schuylkill.
Carrier, C. W., West Burlington, Brad'd.
Carrier, F. A., Philadelphia.
Carroll, T. A., Smethport, McKean.
Carroll, Wm., Philadelphia.
Carson, Thomas, Saltsburg, Indiana.
Case, A. G., Pittsburg, Allegheny.
Castle, F. D., Philadelphia.
Cauley, T. F., Pen Argyle, Northampton.
Chamberlin, A., Brooklyn, Susquehanna.
Charles, Jacob, Lincoln, Lancaster.
Chase, A. F., Philadelphia.
Chase, Robt. H., Norristown, Montg'y.
Cheeseman, J. C., Slatelick, Armstrong.
Chesrown, A. V., Pittsburg, Allegheny.
Chestnut, J. H. W., Philadelphia.
Chrisman, R. S., Pottsville, Schuylkill.
Christine, G. M., Philadelphia.
Christie, J. L., Connoquennesty, Butler.
Christie, L. H., Franklin, Venango.
Christler, J H., Stonesboro', Mercer.
Chriswell, John, New Bethlehem, Clar'n.
Christy, J. H., Allegheny, Allegheny.
Christy, T. C., Pittsburg, Allegheny.
Christy, R. W., Sabbath Rest, Blair.
Chritzman, H. G., Welsh Run, Franklin.
Church, Rita B., Williamsport, Lycom'g.
Cisna, W. R., Ickesburg, Perry.
Clagett, L. S., Blairsville, Indiana.
Clagett, W. L., Standing Stone, Bradford.
Clark, A. T., Greenville, Mercer.
Clark, C F., Philadelphia.
Clark, G. L., Centreville, Crawford.
Clark, H. H., Pittsburg, Allegheny.
Clark, J. H., Mt. Pleasant, Westmore'd.
Clarke, J. T., Erie, Erie.
Clark, L. G., Centreville, Crawford.
Clark, L. S., Philadelphia.
Clark, R. W., Dunbar, Fayette.
Clark, W. N., Whitestown, Butler.
Claudy, J. C., Newville, Cumberland.
Cleaver, Israel, Reading, Berks.
Cleaves, Marg. A., Harrisburg, Daup'n.
Cleemann, R. A., Philadelphia.
Cline, Jas. C., Derry Station, Westm'd.
Clinger, P. J., Conestoga, Lancaster.
Closson, C. H., Altoona, Blair.
Clover, W. M., Lamartine, Clarion.
Coblentz, Jos., Reading, Berks.
Cohen, J. Solis, Philadelphia.
Cohen, Morris S., Philadelphia.
Cole, W. W., Allegheny, Allegheny.
Collins, James, Philadelphia.
Colt, S. F., Laporte, Sullivan (Bradford).
Coltman, ——, Jenkintown, Montgom'y.
Comegys, H. C., Hyde Park, Lack'a.
Compton, Wm., Lancaster, Lancaster.
Confer, D. C., Duncansville, Blair.
Conklin, Gustavus, Orwell, Bradford.
Connell, A. J., Scranton, Lackawanna.
Connell, Jas. G., Oakland, Allegheny.
Conner, D. N., Philadelphia.
Cook, Jos. L., New Alexandria, Westmoreland.
Cook, W. J., Freeport, Armstrong.
Coope, A. F., Oil City, Venango.
Cooper, A. M., Point Pleasant, Bucks.
Cooper, J. C., Philadelphia.
Cooper, J. M., Johnstown, Cambria.
Cooper, T. C., Coopersburg, Lehigh.
Coover, David H., Harrisburg, Dauphin.
Coover, Eli H., Harrisburg, Dauphin.

Coover, F. W., Harrisburg, Dauphin.
Cope, Thos., Nazareth, Northampton.
Corson, Ellwood M., Norristown, Montgomery.
Corson, Hiram, Conshohocken, Montg'y.
Corson, Wm., Norristown, Montgomery.
Corss, Fred., Kingston, Luzerne.
Cosgrove, W. B., Derrytown, Westm'd.
Cotterell, J. F., Columbia, Lancaster.
Cowan, Frank, Greensburg, Westmore'd.
Cowden, E. J., North Warren, Warren.
Cowden, W. R., Jacksville, Butler.
Cowles, H. H., Landers, Warren.
Cox, Andrew P., Big Run, Jefferson.
Craig, Alex., Columbia, Lancaster.
Craig, S. A., Freedom, Beaver.
Craighead, J. A., Pittsburg, Allegheny.
Crandall, G. D., Blossburg, Tioga.
Crandall, T. V., Philadelphia.
Crawford, J. B., Wilkesbarre, Luzerne.
Crawford, J. K., Cooperstown, Venango.
Crawford, J. L., Greensburg, Westm'd.
Crawford, J. S., Taylorstown, Wash.
Crawford, Robert, Cooperstown, Venango.
Crawford, S. M., Youngsville, Warren.
Cressler, John M., Wilkesbarre, Luzerne.
Criswell, John, New Bethlehem, Clarion.
Criss, J. D., Pittsburg, Allegheny.
Criswell, J. T., Harrisburg, Dauphin.
Crosthwaite, D. W., Altoona, Blair.
Crowly, T. Stanton, Philadelphia.
Cruice, R. B., Philadelphia.
Cruice, Wm. R., Philadelphia.
Cummiskey, Jas., Philadelphia.
Cunningham, J. G., Kittanning, Arms'g.
Curtin, R. G., Philadelphia.
Curtis, Levi, Philadelphia.
Curwen, John, Warren, Warren.
Currie, Chas. A., Philadelphia.

Da Costa, J. C., Philadelphia.
Daggett, A. S., Shaner, Westmoreland.
Dale, J. Y., Lemont, Centre.
Dale, W. W., Carlisle, Cumberland.
Daly, W. H., Pittsburg, Allegheny.
Darling, L., Jr., Lawrenceville, Tioga.
Darlington, H., Concordville, Delaware.
Darlington, Horace H., Concordville, Delaware.
Darrach, Jas., Germantown, Phila.
Davenport, B. H. K., Nanticoke, Luz.
Davidson, David, Philadelphia.
Davidson, J. H., Perryopolis, Fayette.
Davis, B. H., Mahanoy City, Schuyl.
Davis, B. H., Lansford, Carbon.
Davis, D. H., Nanticoke, Luzerne.
Davis, F. F., Oil City, Venango.
Davis, John, Pottstown, Montgomery.
Davis, J. H., Soudersburg, Lancaster.
Davis, L. G., Breakneck, Butler.
Davis, M. L., Lancaster, Lancaster.
Davis, R., Wilkesbarre, Luzerne.
Davis, R. G., Wilkesbarre, Luzerne.
Davis, Samuel T., Lancaster, Lancaster.
Davis, S. D., Jermyn, Lackawanna
Davis, Thos. D., Pittsburg, Allegheny.
Davison, F. B., Scott, Lackawanna.
Deakyne, A. C., Philadelphia.
Dean, G. C., Lewistown, Mifflin.
Deaver, J. M., Buck, Lancaster.
Deaver, John B., Philadelphia.
Deaver, R. W., Philadelphia.
Deckert, D., Cressona, Schuylkill.
Deemer, J. T., Munroville, Armstrong.
Deisinger, J., Hellam, York.
De La Montanye, L., Towanda, Bradford.
De Lancy, Chas. E., Loysville, Perry.
De Lannoy, C. W., Chester, Delaware.
De Long, W. H., Emporium, Cameron (Elk).
Dercum, F. X., Philadelphia.
Derhamer, W. A., Lehighton, Carbon.
Detwiler, B. H., Williamsport, Lycoming.
Detwiler, T. C., Williamsport, Lycoming.
Dewey, E. H., Meadville, Crawford.
Dickeson, W. T. W., Media, Delaware.
Dickson, John, Pittsburg, Allegheny.
Dickson, John S., Pittsburg, Allegheny.
Dickson, J. M., Pittsburg, Allegheny.
Diefenderfer, E. L., Ashley, Luzerne.
Dill, A. B., Petersburg, Adams.
Dillman, A. F., Oregon, Lancaster.
Dille, G. W., Cooperstown, Venango.
Dille, J. M., Cooperstown, Venango.
Dixon, W. C., Philadelphia.
Donaldson, J. B., Canonsburg, Wash.
Donnelly, John F., Philadelphia.
Donnelly, M. J., Summit Hill, Carbon.
Dorand, W. R., Bradford, McKean.
Dorn, S. B., Bradford, McKean.
Dorworth, E. S., Bellefonte, Centre.
Doty, L. L., ———, Crawford.
Doughty, Wm. E., Hartsville, Bucks.
Drake, E. G., Antrim, Tioga.
Drake, H. H., Norristown, Montgomery.
Dravo, L. H., Dawson, Fayette.
Drysdale, Thomas M., Philadelphia.
Duer, Edward L., Philadelphia.
Duff, J. H., Pittsburg, Allegheny.
Duff, J. M., Pittsburg, Allegheny.
Duff, W. L., Harrisburg, Dauphin.
Duhring, L. A., Philadelphia.
Dulles, Chas. W., Philadelphia.
Duncan, J. A., Pittsburg, Allegheny.
Duncan, J. L., Pittsburg, Allegheny.
Duncan, W. S., Brownsville, Fayette.
Dundore, A. B., Reading, Berks.
Dundore, A. J., Philadelphia.
Dunglison, Richard J., Philadelphia.
Dunigan, M. C., Erie, Erie.
Dunlap, J. F., Manheim, Lancaster.
Dunmire, Geo. B., Philadelphia.
Dunn, Thos. D , West Chester, Chester.
Dunn, J. C., Pittsburg, Allegheny.
Dunott, T. J., Harrisburg, Dauphin.

Dusenberry, C. S., Le Raysville, Bradford.
Dwight, H. E., Philadelphia.
Dwight, M. B., Jersey Shore, Lycoming.

Eagleson, D. S., West Alexander, Washington.
Eagleton, James M., Philadelphia.
Earley, J. C., Earley, Elk (Lycoming).
Earnhout, E. L., Wilcox, Elk.
Easton, A., Allegheny City, Allegheny.
Eby, James B., Newport, Perry.
Egbert, Joseph C., General Wayne, Delaware.
Egbert, R. A., Red Rock, McKean.
Egbert, T. W., Oil City, Venango.
Ehler, J. Aug., Lancaster, Lancaster.
Ehrenfeld, N. F., Indiana, Indiana.
Eisaman, C. D. B., Scottdale, Westmoreland.
Eisenberg, Philip Y., Norristown, Montgomery.
Elderdice, R. B., McKnightstown, Adams.
Ellenberger, J. W., Harrisburg, Dauph.
Elliott, Thomas, Worth, Mercer.
Elliott, C. V., Mansfield, Tioga.
Elliott, J. C., Bradford, McKean.
Elliott, J. S., Beaver Falls, Beaver.
Elston, G. A., Corry, Erie.
Ely, R. H., Laceyville, Wyoming (Bradford).
Emmerling, C., Pittsburg, Allegheny.
Emory, B. A., Dunningsville, Wash.
Emory, Boyd, Dunningsville, Wash.
Engelman, David, Easton, Northampton.
Engelman, Jos. B., Cherryville, Northampton.
Engel, Hugo, Philadelphia.
Engle, S. J., Jackson, Luzerne.
Eppley, G. W., Marysville, Perry.
Erdman, F. C., Centre Valley, Lehigh.
Erdman, J. D., Macungie, Lehigh.
Erdman, Wm. B., Macungie, Lehigh.
Erwin, B. S., Mauch Chunk, Carbon.
Eshelman, Emory, Philadelphia.
Eshleman, Isaac S., Philadelphia.
Eskridge, J. T., Philadelphia.
Estes, W. L., So. Bethlehem, Northampton.
Evans, B. F., Hyde Park, Lackawanna.
Evans, D. W., Johnstown, Cambria.
Evans, Edwin L., Philadelphia.
Evans, Horace, Philadelphia.
Evans, Horace Y., Philadelphia.
Evans, I. Newton, Hatborough, Montgomery.
Evans, Joshua R., Philadelphia.
Evans, J. R., Bloomsburg, Columbia.
Evans, T. R., Pittsburg, Allegheny.
Evans, W. C., Erie, Erie.
Everhart, I. F., Scranton, Lackawanna.
Ewing, J. B., Uniontown, Fayette.
Ewing, J. R., Oakland X Roads, Westmoreland.
Ewing, R. B., West Grove, Chester.

Fager, C. M., Harrisburg, Dauphin.
Farquhar, Q. C., East Bethlehem, Wash.
Farrelly, Ellis M., Townville, Crawford.
Faught, G G., Philadelphia.
Faulds, Wm. H., Mill Hollow, Luzerne.
Faulkner, R. B., Allegheny, Allegheny.
Fay, John, Altoona, Blair.
Fegley, H. C., Ashland, Schuylkill.
Feicht, B., Economy, Beaver.
Feldstein, A., Philadelphia.
Felly, J. C., Gettysburg, Adams.
Fenton, T. H., Philadelphia.
Filewood, F., Susquehanna Depot, Susquehanna.
Findley, Wm. M., Altoona, Blair.
Finley, Wm. R., Altoona, Blair.
Fischer, Emil, Philadelphia.
Fish, Wm. B., Elwyn, Delaware.
Fisher, C. H , Scranton, Lackawanna.
Fisher, P. S., Zion, Centre.
Fisk, A J., Tioga, Tioga.
Fitzgerald, J. M., Lamartine, Clarion.
Fleming, A., Pittsburg, Allegheny.
Fleming, Wm. J., Philadelphia.
Fletcher, W. W., Uniondale, Susq.
Flick, L. F., Philadelphia.
Flickenger, J. H., Dry Run, Franklin.
Floyd, J. B., Belleville, Mifflin.
Foetherolf, A P., Litzenberg, Lehigh.
Follett, F. M., Bradford, McKean.
Foote, J., Archbald, Lackawanna.
Forbes, W. S., Philadelphia.
Ford, Sidney E., Dallas City, McKean.
Foreman, S. B., Lancaster, Lancaster.
Formad, H. F., Philadelphia.
Forwood, J. F. M., Chester, Delaware.
Foster, D. Gilmore, Crafton, Alleg'y.
Foster, W. S., Pittsburg, Allegheny.
Foulkrod, John K., Philadelphia.
Foulke, Jos., Buckingham, Bucks.
Foust, J. W., Reynoldsville, Jefferson.
Fox, C. W., Philadelphia.
Fox, G. T., Bath, Northampton.
Francis, W. R., Knoxville, Tioga.
Frankhausen, F. W., Blue Rock, Chester.
Franklin, M., Philadelphia.
Free, J. Edward, Harrisburg, Dauphin.
Free, Spencer M., Dagus Mines, Elk.
French, C. S., Coudersport, Potter (Cameron).
Freund, H. H., Philadelphia.
French, M. S., Philadelphia.
Frey, Levi, York, York.
Frick, Wm. S., Philadelphia.
Frické, Albert, Philadelphia.
Friebis, Geo., Philadelphia.
Fritchy, J. A., Harrisburg, Dauphin.
Frischkorn, Chas., Moscow, Lackawanna
Fulk, Levi, New Kingston, Cumberland.

Fuller, Smith, Uniontown, Fayette.
Fulton, Jas., New London, Chester.
Fulton, James, Delmont, Westmoreland.
Fulton, T. H., Sandy Lake, Mercer.
Fundenburg, G. B., Pittsburg, Alleg'y.
Fundenburg, W. F., Pittsburg, Alleg'y.
Funk, D. S., Harrisburg, Dauphin.
Fussell, Linnæus, Media, Delaware.

Gable, J. C., York, York.
Gaddis, L. S., Uniontown, Fayette.
Galbraith, W. S., Hartford, Susq.
Gale, C. T., New Brighton, Beaver.
Gallaher, R. J., Pittsburg, Allegheny.
Gallaher, T. J., Pittsburg, Allegheny.
Gardner, B. F., Bloomsburg, Columbia.
Gardner, E. L., Montrose, Susquehanna.
Gardner, E. R., Clifford, Susquehanna.
Gardner, P. H., Clifford, Susquehanna.
Garrett, E. F., Philadelphia.
Garretson, Jas. E., Philadelphia.
Garver, Jane K., Harrisburg, Dauphin.
Gates, L. M., Scranton, Lackawanna.
Gayley, Jas. F., Philadelphia.
Gelwix, J. M., Upper Strasburg, Frank.
Gemmill, J. M., Jr., Tyrone, Blair.
George, M. R., South Bend, Armstrong.
Gerhard, A. S., Philadelphia.
Gerhard, J. Z., Harrisburg, Dauphin.
Gerry, M. M., Sylvan, Franklin.
Getchell, F. H., Philadelphia.
Gibbs, J. W., Hyde Park, Lackawanna.
Gibbs, L. H., Hyde Park, Lackawanna.
Gibson, W. M. B., Reynoldsville, Jeffer.
Giebner, E. X., Sandy Lake, Mercer.
Gilbert, S. F., Elysburg, Northampton.
Gillaud, J. C., Greencastle, Franklin.
Gilliford, R. H., Allegheny, Allegheny.
Girvin, Robert M., Philadelphia.
Girvin, E. R., Philadelphia.
Githens, W. H. H., Philadelphia.
Gittings, J. B. H., Philadelphia.
Given, Robert A., Clifton Heights, Del.
Glacken, M., Green, Lancaster.
Glasgow, R. B., Philadelphia.
Glatfelter, J. A., Seven Valley, York.
Gleim, Geo., Jr., Cornwall, Lebanon (Schuylkill).
Glenn, J. P., Snow Shoe, Centre.
Good, Frank H., Reading, Berks.
Goodell, Wm., Philadelphia.
Gordon, J. M., Fayette City, Fayette.
Gorgas, S. R., Harrisburg, Dauphin.
Graham, F. R., Chester, Delaware.
Graham, Jas., Philadelphia.
Graham, John, Philadelphia.
Graham, Samuel, Butler, Butler.
Granger, L., Lawrenceville, Tioga.
Grauel, George, Danville, Montour.
Graver, J. D., Stineville, Lehigh.
Gray, F. H , Erie, Erie.
Graydon, A., Philadelphia.
Green, Traill, Easton, Northampton.
Greene, J. J., Pittsburg, Allegheny.
Greene, Wilson, New Geneva, Fayette.
Griffith, G. R., Venice, Washington.
Griffin, J. K., North East, Erie.
Grime, W. H., Beaver Falls, Beaver.
Grimes, Jos. B., Pittsburg, Allegheny.
Griswold, E., Sharon, Mercer.
Groff, C. A., Philadelphia.
Groff, G. G., Lewisburg, Union (Chester).
Gross, F. H., Philadelphia.
Gross, Samuel D., Philadelphia.
Gross, Samuel W., Philadelphia.
Grove, A. P. T., Dallastown, York.
Grove, Geo., Big Spring, Cumberland.
Grove, John H., Philadelphia.
Guldin, B. C., Minersville, Schuylkill.
Gumaer, C. H., Rixford, McKean.
Gummish, G. L., Brownsville, Fayette.
Guth, M. S., Warren, Warren.
Guthrie, G. W., Wilkesbarre, Luzerne.

Hain, J. H., Wernersville, Berks.
Hakes, Harry, Wilkesbarre, Luzerne.
Halbauer, T. K., St. Clair, Schuylkill.
Halberstadt, A. H., Pottsville, Schuyl.
Halberstadt, G. H., Pottsville, Schuyl.
Hale, E. W., Bellefonte, Centre.
Hall, A. Douglass, Philadelphia.
Hall, John C., Philadelphia.
Hall, Jos. E., Emlenton, Venango (Armstrong).
Hall, L. B., Philadelphia.
Hallock, W. E., Pittsburg, Allegheny.
Halsey, C. C., Montrose, Susquehanna.
Hamill, R. H., Philadelphia.
Hamilton, B. F., Emlenton, Venango.
Hamilton, George, Philadelphia.
Hamilton, Hugh, Harrisburg, Dauphin.
Hamilton, J. M., Verona, Allegheny.
Hamilton, S. S., Punxsatawney, Jeffer'n.
Hammell, B. F., Philadelphia.
Hammer, R. B., Greensburg, Westmoreland.
Hand, D. B., Scranton, Lackawanna.
Harlan, Geo. C., Philadelphia.
Harlow, Lewis D., Philadelphia.
Harman, G. G., Lewistown, Mifflin.
Harper, D., Karns City, Butler.
Harris, Geo. F., Bellefonte, Centre.
Harrison, Geo. M., Auburn, Centre (Susquehanna).
Harshberger, A., Milroy, Mifflin.
Harshberger, A. S., Milroy, Mifflin.
Hart, Jacob, York, York.
Harte, R. H., Philadelphia.
Hartly, T. S., Ridgway, Elk.
Hartman, Paul A., Harrisburg, Dauphin.
Hartswick, J. G., Clearfield, Clearfield.
Hartzell, E., Fayetteville, Franklin.
Hartman, M. B., St. Mary's, Elk.
Harvey, Ellwood, Chester, Delaware.
Harvey, H. D., Philadelphia.
Harvey, O. F., Wilkesbarre, Luzerne.

Haskins, C. A., Benezett, Elk.
Hassler, James P., Cochranton, Crawford.
Hatfield, Nathan, Philadelphia.
Hatfield, N. L., Philadelphia.
Hay, Jacob, Jr., York, York.
Hay, John W., Harrisburg, Dauphin.
Hay, Thomas, Philadelphia.
Hayes, T. R., Bellefonte, Centre.
Hays, D. D., Shippensburg, Cumberl'd
Hays, D. S., Hollidaysburg, Blair.
Hays, I. M., Philadelphia.
Hazel, F. B., Philadelphia.
Hazeltine, W. V., Warren, Warren.
Hazen, S. A., Sharon, Mercer.
Hazlett, J. D., Vanderbilt, Fayette.
Hazlett, Isaac C., Bellevernon, Fayette.
Hearn, Jos., Philadelphia.
Heath, W. H., Hyde Park, Lackawanna.
Heckelman, H. W., Pittsburg, Allegh'y.
Heckert, C. J., Fort Hunter, Dauphin.
Heermans, E. A., Hyde Park, Lacka.
Heggie, A. J., Osceola, Tioga.
Heilman, S., Sharon, Mercer.
Heilman, R. P., Emporium, Cameron.
Heilman, U.O., Kelly Station, Armstrong.
Hellyer, Edwin, Philadelphia.
Helsby, Thomas H., Williamsport, Lyc.
Hengst, D. A., Pittsburg, Allegheny.
Henry, F. P., Philadelphia.
Henry, J. A., Millville, Clarion (Jeffer.).
Hepburn, W. M., Williamsport, Lyc.
Herbst, H. Herbert, Reading, Berks.
Herbst, Wm., Trexlertown, Lehigh.
Herman, A. J., Carlisle, Cumberland.
Hermann, Perc., Kratzerville, Snyder.
Hermany, P., Mahanoy City, Schuylkill.
Herr, A. J., Lancaster, Lancaster.
Herr, B. F., Millersville, Lancaster.
Herr, M. L., Lancaster, Lancaster.
Herron, W. M., Allegheny, Allegheny.
Hershy, E. R., Paradise, Lancaster.
Hertz, J. K., Litiz, Lancaster.
Hertzog, H. F., New Jerusalem, Berks.
Hewitt, Geo. A., Philadelphia.
Hewson, Addinell, Philadelphia.
Hewson, Addineli, Jr., Philadelphia.
Heyl, Albert G., Philadelphia.
Hibler, Augustus, Bellefonte, Centre.
Hice, E. C., Harveyville, Luzerne.
Hickman, J. W., Della, York.
Hickman, N. B., Philadelphia.
Hiett, G. W., Pittsburg, Allegheny.
Higgins, P. J., Wilkesbarre, Luzerne.
Highley, Geo. N., Conshohocken, Mont.
Hilderbrand, C. G., Winterstown, York.
Hill, G. A., Williamsport, Lycoming.
Hill, Geo., Hughesville, Lycoming.
Hilliard, G. H., Richardsville, Jefferson.
Hillier, J. W., West Middlesex, Mercer.
Hillis, W. J., Barclay, Pa.
Hinchman, W. A., Dry Run, Franklin.
Hine, E. C., Philadelphia.
Hines, E. P., Great Bend Boro, Susqu'a.
Hinkle, A. G. B , Philadelphia.
Hinnershotz, J. H., Reading, Rerks.
Hobday, Wm. A., Alton, McKean.
Hoffa, J. P., Washingtonville, Montour.
Hogue, D. A., Houtzdale, Clearfield.
Hoffman, C. J., Weatherly, Carbon.
Hoffman, J. A., Centreport, Berks.
Hoffmann, K. M., Clintonville, Venango.
Hoke, Martin, Spring Grove, York.
Holahan, John F., York, York.
Holcomb, C., Lehigh Tannery, Carbon.
Holley, S. L., Nanticoke, Luzerne.
Hollopeter, W. C., Philadelphia.
Holt, J. F., Philadelphia.
Homet, Volney, Camptown, Bradford.
Hooke, B. P., Loysville, Perry.
Hooper, Wm. H., Philadelphia.
Hoover, A M., Parker, Armstrong.
Hoover, N. M., North Hope, Butler.
Hope, R. M., Mercer, Mercer.
Hopkins, B. C., Dunmore, Lackawanna.
Hopkins, Ephraim, Marshalton, Chester.
Horn, C. T., Lehighton, Carbon.
Horn, Jos., Mauch Chunk, Carbon.
Horn, H., Coplay, Lehigh.
Hornbeck, M. E., Catasauqua, Lehigh.
Horner, Caleb W., Philadelphia.
Horner, Chas., Gettysburg, Adams.
Horner, Joseph H., Thornton, Delaware.
Horst, M. W., Earlville, Lancaster.
Horton, Geo. F., Terrytown, Bradford.
Hosack, J. P., Mercer, Mercer.
Hosack, Wm., Saltsburg, Indiana.
Hoskins, Percy, West Chester, Chester.
Hotchkiss, S. B., Edinboro', Erie.
Hottenstein, C. D., Philadelphia.
Houser, J. W., Taylorville, Lackawanna.
Houston, J. Willis, Oxford, Chester.
Howell, J. T., Wilkesbarre, Luzerne.
Howell, W. M., Cogan Station, Lycom'g.
Howland, C. A., Shippensburg, Cumb'd.
Huffman, D. C., Pittsburg, Allegheny.
Hughes, Dan. E., Philadelphia.
Hughes, Donnel, Philadelphia.
Hughes, John W., Blairsville, Indiana.
Hughes, M. B., Shickshinny, Luzerne.
Huidekoper, H. S., Philadelphia.
Hull, A. P., Montgomery, Lycoming.
Hull, Geo. S., Chambersburg, Franklin.
Hull, Wm. R., Williamsport, Lycoming.
Hulshizer, A. H., Philadelphia.
Hummel, C. C., Mechanicsburg, Cumberland.
Humphrey, W. G., Osceola, Tioga.
Humphrey, Wm. T., Osceola, Tioga.
Humphreys, G. L., Irvin, Westmoreland.
Hunsberger, W. E., Maiden Creek, Berks.
Hunt, J. S., Easton, Northampton.
Hunt, Wm., Philadelphia.
Hunter, C. T., Philadelphia.
Hunter, R. P., Leechburg, Armstrong.
Hunter, William A., Upper Strasburg, Franklin.

Hurlbut, C. S., Lewistown, Mifflin.
Hursh, G. R., Harrisburg, Dauphin.
Hurst, M. W., Earlville, Lancaster.
Huselton, W. S., Allegheny City, Alle.
Hutchins, R. H., Pittston, Luzerne.
Hutchinson, Jas. H., Philadelphia.
Hutton, J. C., Harrisburg, Dauphin.
Hyson, J. M., Red Lion, York.

Ilyers, E. B., Lancaster, Lancaster.
Ingraham, T. D., West Chester, Chester.
Ingram, N., Blossburg, Tioga.
Irwin, Crawford, Hollidaysburg, Blair.
Irwin, R. C., Frankstown, Blair.
Irwin, Wm., Breakneck, Butler.
Irwin, W. B., Churchtown, Lancaster.
Isett, F. S., Philadelphia.
Ivison, John, Philadelphia.

Jackson, Edward, West Chester, Chester.
Jackson, Isaac, ———, Fayette.
Jackson, T. M., Hadley, Mercer.
Jacob, Harry, Altoona, Blair.
Jacobs, G. L., Harrisburg, Dauphin.
Jacobs, W. A., Centre Hall, Centre.
Janney, Wm. S., Philadelphia.
Jefferis, D. W., Media, Delaware.
Jefferis, E. P., Philadelphia.
Jennings, S. D., Beers, Allegheny.
Jennings, W. H., Blossburg, Tioga.
Jessop, C. J., Kittanning, Armstrong.
Jessup, S. A. S , Kittanning, Armstrong.
Johnson, C. H., Barclay, Bradford.
Johnson, Russell H., Philadelphia.
Johnson, S. C., Limestone, Clarion (Jeff.)
Johnson, T. B., Towanda, Bradford.
Johnston, A. D., Allegheny City, Allegheny (Armstrong).
Johnston, J. W., Claysburg, Blair.
Johnston, Thos. L., Duncannon, Perry.
Jones, H. Isaac, Hyde Park, Lackawan.
Jones, Jno. Harris, Plymouth, Luzerne.
Jones, M. D., Pittsburg, Allegheny.
Jones, W. W., Pittsburg, Allegheny.
Judd, L. D., Philadelphia.
Jurist, Louis, Philadelphia.

Kain, John B., Manchester, York.
Kamerer, J. W. B., Greensburgh, Westmoreland.
Kanawell, J. F., Penn's Creek, Snyder.
Katz, Harvey, Hilltown, Bucks.
Kay, T. M., Columbia, Lancaster.
Kearns, W. D., Pittsburg, Allegheny.
Keating, John M., Philadelphia.
Keating, Wm. V., Philadelphia.
Keeler, C. B., Harleysville, Montgomery.
Keeler, V. Z., Tioga, Philadelphia (Montgomery).
Keen, W. W., Philadelphia.
Keiffer, S. B., Carlisle, Cumberland.
Keim, C. J., Catasauqua, Lehigh.
Keir, W. G., Philadelphia.
Keiser, P. D., Mahoning, Carbon.
Keller, D. C., Union Deposit, Dauphin.
Kelly, Jos. V., Philadelphia.
Kemp, Agnes, Harrisburg, Dauphin.
Keneagy, S., Strasburg, Lancaster.
Kendig, B. F., Salunga, Lancaster.
Kennedy, C. V. B., Ebensburg, Cambria.
Kerlin, Isaac N., Elwyn, Delaware.
Kern, P. M., Bath, Northampton.
Kerr, Geo., Philadelphia.
Kerr, Jas., Pittsburg, Allegheny.
Kerr, Jas. W., Allegheny, Allegheny.
Kerr, J. W., York, York.
Kersting, Theo., Breakneck, Butler.
Kestler, D., Summit Hill, Carbon.
Keyser, Peter D., Philadelphia.
Kibler, Chas. B., Corry, Erie.
Kifer, L. M., Irwin, Westmoreland.
Kilbourn, H. B., Franklindale, Bradford.
Kilduff, Robt., Philadelphia.
King, C. B., Allegheny City, Allegheny.
King, J. C., Reynoldsville, Jefferson.
King, J. H., Saxonsburg, Butler.
King, R. C., Limeport, Lehigh.
Kirk, Wm. H., Doylestown, Bucks.
Kirkbride, M. F., Philadelphia.
Kirkbride, Thos. S., Philadelphia.
Kirker, John, Allegheny City, Allegheny.
Kirkpatrick, M. B., Philadelphia.
Kistler, E. H., Summit Hill, Carbon.
Klapp, Joseph, Philadelphia.
Kline, C. H., Portland, Northampton.
Kline, G. W., Stormstown, Centre.
Kline, I. Y., Clay, Lancaster.
Kline, L. B., Catawissa, Columbia.
Kline, Wm. O., Jr., Philadelphia.
Klingensmith, I. P., Derry Station, Westmoreland.
Knapp, C. B., Stevensville, Bradford.
Knapp, Chas. P., Wyoming, Luzerne.
Knapp, J. J., ———, Warren.
Knight, Robert B., Doylestown, Bucks.
Knight, Samuel R., Philadelphia.
Knipe, Jacob O., Norristown, Montg'ry.
Knox, Wm. F., McKeesport, Allegheny.
Koch, J. G., Petersville, Northampton.
Kœller, Frank, Pittsburg, Allegheny.
Kohler, J., New Holland, Lancaster.
Koons, P. R., Allen, Cumberland.
Koser, J. J., Shippensburg, Cumberl'd.
Koser, S. S., Williamsport, Lycoming (Schuylkill).
Kotz, A. L. Easton, Northampton.
Krause, J. H., Plumsteadville, Bucks.
Kreiter, J. S., Litiz, Lancaster.
Krise, C. W., Carlisle, Cumberland.
Kromer, J. C., Aquashicola, Carbon.
Kuch, J. A., Egypt, Lehigh.
Kugler, Annie, Norristown, Montgom'y.
Kuhn, L. DeB., Reading, Berks.
Kurtz, S. L., Reading, Berks.
Kurtz, J. Ellis, Reading, Berks.
Kutz, W. L , Parryville, Carbon.

Lachenour, H. G., Easton, Northampton.
Lackey, H. B., Providence, Lackawanna.
Ladd, C K., Towanda, Bradford.
Ladd, Horace, Philadelphia.
Lamb, F. D., Great Bend Village, Susq.
Lampen, M., Philadelphia.
Landesberg, Max, Philadelphia.
Landis, J. A., Hollidaysburg, Blair.
Lane, Samuel G., Chambersburg, Frank.
Langdon, D. J., Shenandoah, Schuyl.
Lange, C., Pittsburg, Allegheny.
Langfitt, W. J., Allegheny, Allegheny (Beaver).
Larimer, W. T., Saltsburg, Indiana.
Lashelle, R. M., Centralia, Columbia.
Latham, P. H., Weatherly, Carbon.
Laubach, Stephen, Easton, Northampt'n.
Lawall, L. H., Bethlehem, Northampton.
Lawson, T. C., Brookville, Jefferson.
Leadenham, J. W., Knox P. O., Clarion.
Leaman, B., Leaman Place, Lancaster.
Leaman, Henry, Philadelphia.
Lee, Benjamin, Philadelphia.
Lee, Jno. G., Philadelphia.
Lee, J. M., Pittsburg, Allegheny.
Leedom, Edwin C., Plymouth Meeting, Montgomery.
Leedom, Oscar, Plymouth Meeting, Montgomery.
Leet, F. H., Greenville, Mercer.
Leffman, Henry, Philadelphia.
Leidy, Joseph, Philadelphia.
Leidy, Philip, Philadelphia.
Le Moyne, F., Pittsburg, Allegheny.
Lenher, L. H., Mechanicsburg, Cumberland.
Lenker, C., Schuylkill Haven, Schuyl.
Leonard, R., Mauch Chunk, Carbon.
Levan, J. R., Philadelphia.
Levengood, W. Y., Bellwood, Blair.
Levis, Richard J., Philadelphia.
Lewis, Thomas, Mahanoy City, Schuyl.
Lightner, J. N., Ephrata, Lancaster.
Lilly, V. H., McSherrystown, Adams.
Lincoln, S. W., Nelson, Tioga.
Lineaweaver, J. K., Columbia, Lancaster.
Linn, Geo. A., Monongahela City, Wash.
Linn, G. W., Philadelphia.
Lippincott, J. A., Pittsburg, Allegheny.
Little, Wm. S., Philadelphia.
Livingston, A. T., Philadelphia.
Livingston, J. B., West Middlesex, Mercer.
Livingston, T. M., Mountville, Lancast.
Lochman, Luther M., York, York.
Lochman, W. J., Allentown, Lehigh.
Loder, P. E., Philadelphia.
Loeling, G. E., Philadelphia.
Logan, H V., Scranton, Lackawanna.
Long, Alfred A., York, York.
Long, R. P., Mechanicsburg, Cumberland.
Longaker, D., Philadelphia.
Longsdorf, W. H., Carlisle, Cumberl'd.
Longshore, W. R., Hazleton, Carbon.
Longstreth, Morris, Philadelphia.
Longstreth, M. Fisher, Sharon Hill, Del.
Loop, A. M., Nelson, Tioga.
Loop, D. D., North East, Erie.
Lopez, J. H., Philadelphia.
Louder, A. J., Ashley, Luzerne.
Love, T. F., Philadelphia.
Lovett, Arthur S., Erie, Erie.
Lowman, John, Johnstown, Cambria
Lowman, W. B, Johnstown, Cambria.
Lowson, L. C., Greenville, Mercer.
Luce, C. G., Reading, Berks.
Ludlow, J. L., Philadelphia.
Luke, J. C., South Fork, Cambria.
Lumley, Geo. D., Williamsport, Lycom'g.
Lusk, Amos, Zelienople, Butler.
Lusk, Jos. S., Harmony, Butler.
Lyman, J. W., Towanda, Bradford.
Lyon, Chas. L., Montourville, Lycoming.
Lyon, Edward, Williamsport, Lycoming.
Lyon, Thomas, Williamsport, Lycoming.
Lyons, Wm., Philadelphia.
Lytle, G. E., Monongahela City, Wash.
Lytle, S. F., Philipsburg, Clearfield.

Mabon, Thos., Allegheny City, Alleg'y.
Macavoy, John, Philadelphia.
MacBride, Isaac, Philadelphia.
MacCord, G. T., Pittsburg, Allegheny.
Macfarlane, J. W., Pittsburg, Allegheny.
Mackres, H. O., Corry, Erie.
Maclay, David, Green Village, Franklin.
Macomber, N. S, Philadelphia.
McAdam, Alex. H., Philadelphia.
McAlarney, W., Philadelphia.
McBride, J. B., Columbia, Lancaster.
McCaa, D. J., Ephrata. Lancaster.
McCall, C. A., Philadelphia.
McCann, Jas., Pittsburg, Allegheny.
McCarrel, D., Hickory, Washington.
McCarrel, J. F., Eldersville, Wash.
McCarrell, Jas., Allegheny City, Alleg'y.
McCaskey, C. A., Barnhart's Mill, Butler.
McCauley, R. E., Apollo, Armstrong.
McChesney, A., Shelocta, Indiana.
McChesney, Robert, Shelocta, Indiana.
McClellan, George, Philadelphia.
McClelland, Cochran, Philadelphia.
McClelland, R. M., Philadelphia.
McClure, J. W., York, York.
McClurg, John R., West Chester, Chester.
McCollin, S. M., Philadelphia.
McCombs, R. S., Philadelphia.
McComb, S. F., St. Petersburg, Clarion.
McConnell, H. S., New Brighton, Beaver.
McConaughy, D. W., Latrobe, Westmoreland.
McConaughy, Jas., Mt. Pleasant, Westmoreland.
McConaughy, Robt., Mt. Pleasant, Westmoreland.

McCormick, H. G., Montoursville, Lycoming.
McCoy, Alex. W., Philadelphia.
McCoy, H. L., Smethport, McKean.
McCracken, G. Y., Philadelphia.
McCready, J. A., Pittsburg, Allegheny.
McCready, R. J., Allegheny, Allegheny.
McCreary, J. H., Lancaster, Lancaster.
McCrystal, Jno., Minersville, Schuylkill.
McCulloch, J. T., Freeport, Armstrong.
McCullough, T. C., Oil City, Venango.
McCurdy, R. L., Freeport, Armstrong.
McCurdy, W. H., Slate Hill, York.
McDonald, Nesbit, Pittsburg, Alleg'y.
McDonough, H. H., Vanceville, Wash.
McDowell, S. B., Philadelphia.
McElrath, J. B., Jackson Centre, Mercer.
McElree, A. S., Washington, Washing'n.
McElroy, B. F., Philadelphia.
McElroy, J., Hickory, Washington.
McFerran, Jas. A., Philadelphia.
McGeehan, W., New Galilee, Beaver.
McGill, P., Williamstown, Dauphin.
McGowan, D. W., Ligonier, Westmore.
McGowen, H., Harrisburg, Dauphin.
McIlvaine, Chas. H., Philadelphia.
McInich, L., West Freedom, Clarion.
McIntire, Chas., Jr., Easton, Northampton
McKean, John A., Washington, Wash.
McKee, J. C., Slate-lick, Armstrong.
McKee, J. W., Cochran's Mill, Armst'g.
McKelvey, W. H., Pittsburg, Allegheny.
McKelvy, J. B., Bloomsburg, Columbia.
McKennan, H. S., Washington, Wash.
McKennan, Thos., Washington, Wash.
McKenzie, Wm., Mingo, Montgomery.
McKibben, David J., Ashland, Schuyl.
McKibbon, J. A , Allegheny City, Allegheny (Jefferson).
McKim, V. I., Lewistown, Mifflin.
McKinney, D., New Brighton, Beaver.
McKinnon, M. J., York, York.
McLanahan, T. J., Chambersburg, Franklin.
McLean, H. D., Philadelphia.
McMorris, N. C., Duncannon, Perry.
McMullen, Thos., Penn Run, Indiana.
McMurray, Andrew S., Philadelphia.
McNary, H. A , Pittsburg, Allegheny.
McNeil, Geo. W., East End, Allegheny.
McNitt, G. F., Sheffield, Warren.
McNune, J. N., Suterville, Westmorel'd.
McRean, Thomas A., Philadelphia.
McReynolds, H. W., Bloomsburg, Columb.
Madden, W. B., Johnstown, Cambria.
Madden, W. S., Lewistown, Mifflin.
Magill, Wm H., Danville, Montour.
Mahon, Jos. T., Newton Hamilton, Mif'in.
Maine, G. D., Mainesburg, Tioga.
Mancher, A. J., Carrolltown, Cambria.
Mancher, J. E., Carrolltown, Cambria.
Mann, Chas., Bridgeport, Montgomery.
Marbourg, Esther L. W., Johnstown, Cambria.
Marbourg, H. W., Johnstown, Cambria.
Marchant, Jas. I., Irwin, Westmoreland.
Markle, C. F., Columbia, Lancaster.
Marlin, T. J., Shelocta, Indiana.
Marquis, D. S., Rochester, Beaver.
Marsh, F. L., Mt. Pleasant, Westmor'd.
Marshall, D. S., Ashland, Schuylkill.
Marshall, J. B., Shippensburg, Cumberland.
Marshall, R. P., Mahoning, Armstrong.
Martin, A. J., Allentown, Lehigh.
Martin, E. G., Allentown, Lehigh.
Martin, E. W., Pittsburg, Allegheny.
Martin, H. G., Cherry Flats, Tioga.
Martin, J., Philadelphia
Martin, Thos., Allentown, Lehigh.
Massey, G. B., Philadelphia.
Massey, Isaac, West Chester, Chester.
Masten, James, Westfield, Tioga.
Mathews, Jas. M., Temple, Berks.
Mathiot, H. B., Smithfield, Fayette.
Matson, C. M., Brookville, Jefferson.
Matson, W. F., Brookville, Jefferson.
Matter, G. F., Williamstown, Dauphin.
Matter, R. M., Elderton, Armstrong.
Matterson, D. E., Bradford, McKean.
Mausteller, Jas. D., Danville, Montour.
Maxwell, J. K., Worthington, Armstrong.
Mayer, Edw. R., Wilkesbarre, Luzerne.
Mayer, I. H., Willowstreet, Lancaster.
Mays, Thos. J., Upper Lehigh, Luzerne.
Meals, N. M., Callensburg, Clarion.
Meals, S. D., Callensburg, Clarion.
Means, W. A., DuBois, Clearfield.
Mears, Geo. I., Numidia, Columbia.
Mears, J. Ewing, Philadelphia.
Megargle, O. A., Orangeville, Columbia.
Mehard, Jas. W., Mercer, Mercer.
Mehard, S. S., Mercer, Mercer.
Meigs, Arthur V., Philadelphia.
Meisenhelder, Edw. W., York, York.
Melhorn, E., New Chester, Adams.
Mellerson, A., Lower Merion, Montgom.
Melsheimer, E. L., Dillsburg, York.
Merklein, C. H., Chambersburg, Franklin.
Meschter, Geo. K., Centre Point, Montgomery.
Metzler, S. N., Phœnix, Armstrong.
Meyer, L. G., Pardoe, Mercer.
Michler, H. D., Easton, Northampton.
Miller, A. M., Bird-in-Hand, Lancaster.
Miller, A. N., East Texas, Lehigh.
Miller, Chris. H , Philadelphia.
Miller, D. J. M., Philadelphia.
Miller, D. P., Huntingdon, Huntingdon.
Miller, D. W., Adamsburg, Westmorel'd.
Miller, E. S., Altoona, Blair.
Miller, J S., Loganville, York
Miller, O. L., Allegheny City, Allegheny.
Miller, W. N., Pittsburg, Allegheny.

Milligan, J. D., Madison, Westmoreland.
Milliken, D. R., Landisburg, Perry.
Milner, R. H., Chester, Delaware.
Mills, Charles K., Philadelphia.
Mills, Edward, Ulster, Bradford.
Miner, J. L., Wilkesbarre, Luzerne.
Mingle, D. H., Millheim, Centre.
Minnich, A. K., Philadelphia.
Mish, Geo. F., Middletown, Dauphin.
Mitchell, S. Weir, Philadelphia.
Mixsell, Jos., Easton, Northampton.
Montelius, R. W., Mt. Carmel, Northumberland (Schuylkill).
Montgomery, E. E., Philadelphia.
Montgomery, John, Chambersburg, Franklin.
Montgomery, Jos. R., Buckhorn, Columbia.
Montgomery, Wm. H., Leechburg, Armstrong.
Moody, Benj., Mansfield, Tioga.
Moody, G. O., Titusville, Crawford.
Moon, Wm. P., Philadelphia.
Moore, E. W., Franklin, Venango.
Moore, Jas. W., Easton, Northampton.
Moore, Jno. R., Burrell, Westmoreland.
Morehouse, E. R., Philadelphia.
Morey, J., Royersford, Montgomery.
Morris, E. K., Eldred, McKean.
Morris, F. G., Liverpool, Perry.
Morris, J. Cheston, Philadelphia.
Morrison, M. P., Monongahela City, Washington.
Morrison, W. H., Philadelphia.
Morrow, J. W., Tionesta, Forrest (Venango).
Morrow, W. L., Freeport, Armstrong.
Moss, Wm., Philadelphia.
Mosser, E. N., Mechanicsburg, Cumberland.
Mossman, B. E., Greenville, Mercer.
Mowery, H. A., Marietta, Lancaster.
Mowery, J. L., Conestoga, Lancaster.
Mowry, R. B., Allegheny City, Alleg'y.
Moyer, Daniel P., Dublin, Bucks.
Muhlenberg, Frank, Philadelphia.
Muhlenberg, H. E., Lancaster, Lancaster.
Muhlenberg, Wm. F., Reading, Berks.
Muller, A. F., Philadelphia.
Mumma, E. W., Bendersville, Adams.
Murdoch, F. H., Bradford, McKean.
Murdock, J. B., Allegheny City, Allegheny.
Murphy, J. A., Wilkesbarre, Luzerne.
Murray, F. Marion, Lenni, Delaware.
Musser, Benj., Strasburg, Lancaster.
Musser, C. S., Aaronsburg, Centre.
Musser, F. M., Lancaster, Lancaster.
Musser, H. E., Witmer, Lancaster.
Musser, J. H., Philadelphia.
Musser, J. H., Lampeter, Lancaster.
Musser, P. T., Aaronsburg, Centre.
Myers, J. D., Wernersville, Berks.
Myers, Z. C., York, York.

Nagle, F. O., Philadelphia.
Nancrede, Chas. B., Philadelphia.
Nash, A. B., Ottsville, Bucks.
Nash, Joseph D., Philadelphia.
Nebinger, Andrew, Philadelphia.
Neely, J. W., Pittsburg, Allegheny.
Neff, Geo. W., —— Fayette.
Neff, Jos. F., Philadelphia.
Neilson, T. R., Philadelphia.
Nelan, J. R., Brownsville, Fayette.
Newbaker, P. C., Washingtonville, Montour.
Newcomet, H. W., Philadelphia.
Newpher, J. L., Mt. Joy, Lancaster.
Newton, D. N., Towanda, Bradford.
Newton, F. G., Towanda, Bradford.
Neyman, A. M., Butler, Butler.
Nichols, Jas., Bradford, McKean.
Nipple, H M., Freeburg, Snyder.
Noble, Wm. P., Upton, Franklin.
Noel, A., Bonneauville, Adams.
Nolan, Edward J., Philadelphia.
Nonamaker, Noah S., Bedminster, Bucks.
Norris, H. E., Marietta, Lancaster.
Nutt, G. D., Williamsport, Lycoming.

O'Connor, H. R., Pittsburg, Allegheny.
O'Farrell, G. D., Philadelphia.
Ogleby, Jas., Danville, Montour.
O'Hara, Michael, Philadelphia.
Oldshue, J. A., Pittsburg, Allegheny.
Oliver, Chas. A., Philadelphia.
O'Neal, J. W. C., Gettysburg, Adams.
O'Neill, F. X., Philadelphia.
O'Neill, John J., Philadelphia.
Orris, H. O., Newport, Perry.
Orth, H. L., Harrisburg, Dauphin.
Osborne, A., Edgar, Media, Delaware.
Osler, Owen, Philadelphia.
Ott, Isaac, Easton, Northampton.
Ott, Lambert, Philadelphia.
Overmiller, C F, Glenville, York.
Owen, J. J., Philadelphia.
Owens, Wm. R., Ashland, Schuylkill.
Oyler, W. H., McKnightstown, Adams.

Packard, John H., Philadelphia.
Packer, Nelson, Wellsboro', Tioga.
Paine, D. L., New Bethlehem, Clarion (Jefferson).
Paine, W. A., Hyde Park, Lackawanna.
Palmer, C. T., Pottsville, Schuylkill.
Palmer, Chas., Chambersburg, Franklin.
Pancoast, Wm. H., Philadelphia
Parcels, W. H., Lewistown, Mifflin.
Parish, W. H., Philadelphia.
Park, J. W., Williamstown, Dauphin.
Parke, A. G. B., Gap, Lancaster.
Parke, Thos. E, Downingtown, Chester.
Parker, W. C., Mansfield Valley, Alleg.

Parr, G. W., Clintonville, Venango.
Parry, Susan, Doylestown, Bucks.
Partenheimer, J. R., Philadelphia.
Partridge, C. L., Ridley Park, Delaware.
Patrick, E., West Whiteland, Chester.
Patton, N. N. P., Pittsburg, Allegheny.
Payne, E. D., Towanda, Bradford.
Pearson, J. W., Petersburg, Adams.
Pearson, J. S., Philadelphia
Peltz, Josiah, Philadelphia.
Pennepacker, H., Harford, Susquehan'a.
Pepper, Wm., Philadelphia.
Perdue, Wm. R., Unionville, Chester.
Perkins, E. S., Philadelphia.
Perkins, F. M., Philadelphia.
Perkins, J. T., York, York.
Perry, Hext. M., Philadelphia.
Petigrew, S. H., DuBois, Clearfield.
Pfouts, Geo. I., Jersey Shore, Lycoming.
Phelps, W. C., Philadelphia.
Philips, E. F., Tower City, Schuylkill.
Phillips, Ellis, Connelsville, Fayette.
Phillips, Jno. S., Allegheny, Allegheny.
Phillips, J. W., Clifton Heights, Dela.
Pickett, M., Corry, Erie.
Piersol, Geo. A., Philadelphia.
Pillow, R. H., Butler, Butler.
Piper, O. P., Schuylkill Haven, Schuyl.
Plank, E., Christiana, Lancaster.
Poffenberger, A. T., Dauphin, Dauphin.
Pollock, A. M., Pittsburg, Allegheny.
Porter, Wm. G., Philadelphia.
Post, S. B., New Brighton, Beaver.
Potsdamer, Geo. B., Philadelphia.
Pownall, H. W., Atglen, Chester.
Prall, C. R., Philadelphia.
Pratt, C. M., Towanda, Bradford.
Preston, Geo. H., Kane, McKean (Warren).
Prevost, L. W., Buck Mount, Carbon.
Price, Hannah J., Chester, Delaware.
Price, Jacob, West Chester, Chester.
Price, Mordecai, Philadelphia.
Price, Henry R., Kennett Square, Chester.
Prowel, W. R., Siddonsburgh, York (Cumberland).
Purington, A. F., Indiana, Indiana.
Pursell, Howard, Bristol, Bucks.
Pursell, Isaac, Danville, Montour.
Putnam, H. B, North East, Erie.
Putt, M. O., Churchville, Dauphin.

Quail, Chas. E., Auburn, Schuylkill.
Quick, P. A., Sugar Run, Bradford.
Quigg, F. W., Catasauqua, Lehigh.

Rahauser, Geo. G., Pittsburg, Allegh'y.
Rahter, C. A, Harrisburg, Dauphin.
Ralston, R. G., Cowansville, Armstrong.
Ramsay, R. N., Mahanoy City, Schuyl.
Ramsey, R. W., St. Thomas, Franklin.
Ramsey, W. S., West Bridgewater, Beav.
Ranck, Chas. B., Philadelphia.
Randall, A. Z., Erie, Erie.
Randall, B. A., Philadelphia.
Randenbash, Abr'm M, Adamstown, Lancaster (Berks).
Rankin, D N., Allegheny City, Allegh'y.
Rankin, M. M., Brockwayville, Clarion (Jefferson).
Rankin, W. D., Allegheny, Allegheny.
Ransley, A. W., Philadelphia.
Raub, Jno. A., Philadelphia.
Rea, Jas. C., Pittsburg, Allegheny.
Rea, Jos. L., Green Ridge, Lackawanna.
Read, Lewis W., Norristown, Montg'y.
Reagan, G. L., Berwick, Schuylkill
Reagan, R. S., Broadford, Fayette.
Reber, W. M., Bloomsburg, Columbia.
Rebman, G. A., York, York.
Redeker, F. W., Espy, Columbia.
Redick, Saml. T., Allegheny, Allegheny.
Reed, A. G., Philadelphia.
Reed, C. H., Wysox, Bradford.
Reed, F. B., Osceola, Clearfield.
Reed, J. A. E., Lancaster, Lancaster.
Reed, J. H., Sharon, Mercer.
Reed, Jos. A., Dixmont, Allegheny.
Reed, S. P., Scranton, Lackawanna.
Reeves, O., Nesquehoning, Carbon.
Reichard, C. C., Brownsville, Fayette.
Reichard, P. L., Allentown, Lehigh.
Reid, A. M., Clarion, Clarion.
Reid, J. K., Conshohocken, Montgomery.
Reily, Geo. W., Harrisburg, Dauphin.
Reily, W. F., Carlisle, Cumberland.
Reimsnyder, B. J., Hinkletown, Lancas.
Rentschler, H. D., Ringtown, Schuyl.
Reuter, G. N., Benvenue, Dauphin (Perry).
Rex, Geo. A., Philadelphia.
Rex, O. P., Philadelphia.
Rex, T. A., Pittsburg, Allegheny.
Rhea, A. R., Sharpsville, Mercer.
Rhoads, Almira F., Cambridgeboro', Crawford.
Rhorer, T., Queensville, Lancaster.
Rice, J. N., Pittston, Luzerne.
Rich, Thos. C., Philadelphia.
Richards, I. N., Fallsington, Bucks.
Richardson, E., Philadelphia.
Richardson, Joseph G., Philadelphia.
Richardson, W. L., Montrose, Susqueh.
Richter, Aug., Williamsport, Lycoming.
Rickards, W. M. L., Philadelphia.
Riegle, H., Catasauqua, Lehigh.
Rieser, Howard, Reading, Berks.
Riggs, D. W., Allegheny, Allegheny.
Riggs, E. S., Allegheny, Allegheny.
Riggs, J. E., Stoneville, Westmoreland.
Righter, W., Columbia, Lancaster.
Ringwalt, M., Hempfield, Lancaster.
Rippard, J. C., Wilkesbarre, Luzerne.
Risley, S. D., Philadelphia.
Ritchey, John A., Oil City, Venango.

Ritter, F. D., Gaines, Tioga.
Robbins, E. S., Covington, Tioga.
Roberts, A. S., Philadelphia.
Roberts, John B., Philadelphia.
Robins, E. S., Shamokin, Northumbl'd.
Robins, J. K., Catawissa, Columbia.
Robins, R. P., Philadelphia.
Robins, O. M., Shamokin, Northumberland (Schuylkill).
Robins, W. A., Catawissa, Columbia.
Robinson, F. C., Fayette.
Rockwell, O. H., Monroeton, Bradford.
Roebuck, J. K., Bethlehem, Northamp.
Roebuck, P. J., Litiz, Lancaster.
Rogers, J. J., Huntsville, Luzerne.
Rogers, J. L., Kingston, Luzerne.
Rogers, Robert E., Philadelphia.
Rogers, Wm , Gibson, Susquehanna.
Roland, O., Lancaster, Lancaster.
Roland, W. S., York, York.
Roller, W. C., Hollidaysburg, Blair.
Rose, David, Chester, Delaware.
Rosenthal, E., Philadelphia
Ross, I. E., Wilkesbarre, Luzerne.
Ross, James, Clarion, Clarion.
Ross, John D., Williamsburg, Blair.
Ross, J. Frank, Clarion, Clarion.
Ross, Samuel M., Altoona, Blair.
Ross, W. S., Altoona, Blair.
Rothrock, A., McVeytown, Mifflin.
Rothrock, J. T., West Chester, Chester.
Rothrock, Marand, Mt. Pleasant Mills, Snyder.
Rothrock, Roswell, Middleburg, Snyder.
Rothrock, S. H., McVeytown, Mifflin.
Rouse, Sam'l J., York, York.
Rudderow, B. J., Philadelphia.
Rugh, W. J., Manor Dale, Westmoreland.
Rupp, H., Hummelstown, Dauphin.
Rupp, J. D., Mooltown, Berks.
Russ, Eben J., St. Mary's, Elk.
Russell, E. A., Fleming, Centre.
Rutledge, S. R., Blairsville, Indiana.

Saeger, G. C., Montoursville, Lycoming.
Sajous, C. E., Philadelphia.
Sample, John, Wilkinsburg, Allegheny.
Samuels, Edw., Mt. Carmel, Northumberland (Schuylkill).
Sandt, John, Easton, Northampton.
Sandt, Samuel, Easton, Northampton.
Sangston, J. P., McClellandtown, Fayette.
Santee, Eugene I., Philadelphia.
Sapp, F. W., Dagus Mines, Elk.
Sargent, Gorham P., Bryn Mawr, Montgomery.
Sarver, Wm., Allegheny City, Allegh'y.
Saul, C. H., Steelton, Dauphin.
Savery, Wm., Bryn Mawr, Montgom'y.
Schaffer, Chas., Phiiadelphia.
Scheidt, P. M., Philadelphia.
Schell, H. S., Philadelphia.
Schill, F., Johnstown, Cambria.
Schmauser, T., Allegheny, Allegheny.
Schneider, Chas., Driftwood, Cambria (Elk)
Schoales, J. D., Philadelphia.
Schofield, E. Lane, Wiconisco, Dauphin.
Schoonmaker, P., Hopbottom, Susque.
Schott, Arnold, Philadelphia.
Schrack, John, Jeffersonville, Montg'y.
Schultz, S. S., Danville, Montour.
Scott, C. H., Sayre, Bradford.
Scott, F. P., Monongahela City, Washington.
Scott, J. B., Gettysburg, Adams.
Scott, J. Y., East Bethlehem, Washing'n.
Scroggs, Jas., Jr., Beaver, Beaver
Seabrook, C. C., Harrisburg, Dauphin.
Seabury, W. W., Sugar Grove, Warren.
Seaman, John K., Lenhartsville, Berks.
Seeley, A H., Woodhut, Tioga.
Seem, Albert A., Bangor, Northampton.
Seem, A. K., Martin's Creek, North'n.
Seiberling, F. C., Lynnsville, Lehigh.
Seibert, J. P., Chambersburg, Franklin.
Seibert, W. H., Baldwin, Dauphin.
Seidell, F. H., Chester, Delaware.
Seiler, Carl, Philadelphia.
Seiler, J. P., Harrisburg, Dauphin.
Seip, Amos, Easton, Northampton
Seip, M. S., Danville, Montour (Northampton).
Seip, W. H., Bath, Northampton.
Seiple, S. C., Centre Square, Montg'y.
Seiss, R. S., Littlestown, Adams.
Seitz, J. L., Harrisburg, Dauphin.
Seltzer, C. M., Philadelphia
Senderling, P M., Berwick, Columbia.
Sensenig, J. W., Witmer, Lancaster.
Senseny, E. N., Chambersburg, Frank.
Seyfert, Theo. H., Philadelphia.
Shaffer, J. F., Farmersville, Lancaster.
Shakespeare, E. O., Philadelphia.
Shapleigh, E. B., Philadelphia.
Shattuck, Geo. F., Philadelphia.
Shaw, Thos. W., Pittsburg, Allegheny.
Shaw, W. C., Pittsburg, Allegheny.
Sheaffer, A. H., Lewistown, Mifflin.
Shearer, Jas. Y., Sinking Spring, Berks.
Sheeder, P. J., Shermansdale, Perry.
Sheets, H. W., South Bethlehem, Northampton.
Sheetz, J L., New Oxford, Adams.
Sheibly, J. P., Landisburg, Perry.
Shelly, A. F., Philadelphia.
Shenk, D. H., Rohrerstown, Lancaster.
Shenk. J. H., Litiz, Lancaster.
Shepler, J. T., Dunbar, Fayette.
Sheridan, C., Johnstown, Cambria.
Sheridan, Jno. C., Johnstown, Cambria.
Sherman, A. B., Girardville, Schuylkill.
Sheppard, F. C., Philadelphia.
Shilleto, G. M., Allegheny City, Alleg'y.
Shilling, ———, Sharon, Mercer.

Shindel, Jno. Y., Middleburg, Snyder.
Shirk, J. M., Lancaster, Lancaster.
Shirk, Levi A , Fredericksburg, Lebanon (Berks).
Shimmel, B. F., Philadelphia (Berks).
Shive, P. C., Plains, Luzerne.
Shoemaker, B., Brownsville, Fayette.
Shoemaker, J. V., Philadelphia.
Shoemaker, Geo. G., Church P. O., Clarion.
Shoemaker, W. P., Bradford, McKean.
Short, R. N., Mechanicsburg, Cumberland.
Shrawder, John S., Shannonville, Montgomery.
Shuey, J. H., Custar City, McKean.
Shugart, F. A., Tidioute, Warren.
Shull, John D., Markleville, Perry.
Shuman, J. L., Belbend, Luzerne.
Shutt, J. T., Transfer, Mercer.
Sibbet, R. L., Carlisle, Cumberland.
Silliman, James E., Erie, Erie.
Simington, R. S., Danville, Montour.
Simsohn, Jos. S., Philadelphia.
Simpson, Theo. P., Beaver Falls, Beaver.
Simpson, W. C., New Brighton, Beaver.
Simes, J. H. C., Philadelphia.
Simon, T. W., Philadelphia.
Singer, J. J., Connellsville, Fayette.
Sinkler, W., Philadelphia.
Skillern, P. G., Philadelphia.
Skillern, S. R., Philadelphia.
Skilling, M. J., Philadelphia.
Sloan, J. G., Monongahela, Washington.
Slocum, H. A., Philadelphia.
Smaltz, J. Henry, Philadelphia.
Smathers, W. J., DuBois, Clearfield.
Smith, A. H., Paradise, Lancaster.
Smith, A. H., Philadelphia.
Smith, A. M., Beaver Springs, Sny'r.
Smith, C. H., Linglestown, Dauphin.
Smith, E. N., Susquehanna Depot, Susquehanna.
Smith, G. W., Hollidaysburg, Blair.
Smith, H. A., Philadelphia.
Smith, Henry H., Philadelphia.
Smith, Jas. M., Tyrone, Blair.
Smith, J. K., Harrisburg, Dauphin.
Smith, J. R., Pine Grove Mill, Centre.
Smith, L. A., New Milford, Susquehan.
Smith, Nelson M., Riverside, Northumberland (Montour).
Smith, Robert B., Tioga, Tioga.
Smith, S., Ardmore, Montgomery.
Smith, S. S., Driftwood, Cameron.
Smith, W. C. J., Pottsville, Schuylkill.
Smith, W. H., Intercourse, Lancaster.
Smock, E. L., Klecknersville, Northamp.
Snavely, S. B., Pottstown, Montgomery.
Snively, A. P., Hanover, York.
Snively, I. N., Waynesboro', Franklin.
Snively, Whitmer, Pittsburg, Allegheny.
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The attention of County Societies is respectfully directed to the following clauses of the Constitution and By-Laws of the State Society, viz.:—

Constitution	Article VII.
By-Laws	Article V. Secs. 1 and 2.
Constitution	Article V. Sec. 9.

From which it appears

First. That each County Society is liable to assessment in proportion to the membership which it reports to the State Society.

Second. That the representation of each County Society at the meetings of the State Society is strictly limited by the membership thus reported; and

Third. That no member can continue in good standing in his County Society, who declines to contribute his proportion of the annual assessment, unless the Society makes good his deficiency.

N. B.—It will be remembered that the State Society now imposes no assessment on the County Societies or individual members thereof other than that for the Transactions.